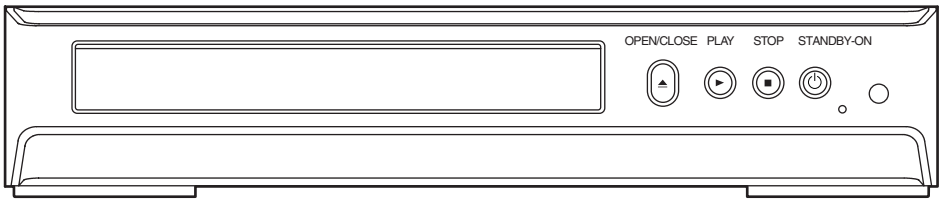
MAGNAVOX

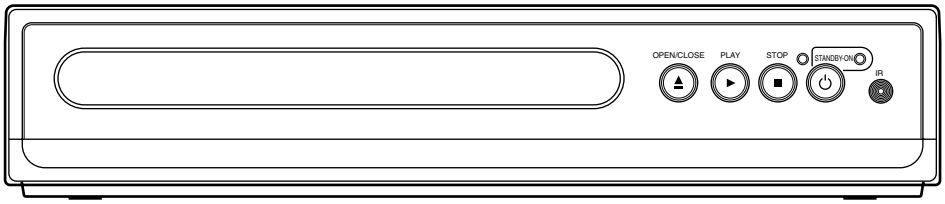
SERVICE MANUAL

DVD PLAYER

MWD200FA



MWD200G



IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all Funai Equipment. The service procedures recommended by Funai and described in this service manual are effective methods of performing service operations. Some of these service special tools should be used when and as recommended.

It is important to note that this service manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Funai could not possibly know, evaluate and advice the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Funai has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Funai must first use all precautions thoroughly so that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

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SPECIFICATIONS

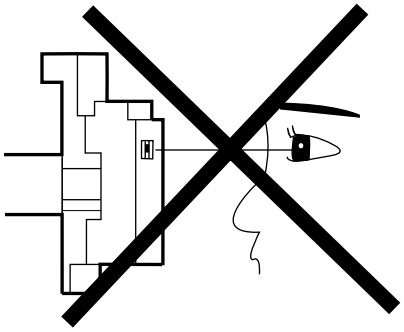
Item	Conditions	Unit	Nominal	Limit
1. Video Output	75 Ω load	Vpp	1.0	± 0.1
2. Coaxial Digital Out	75 Ω load	mVpp	500	± 50
3. Audio (PCM)				
3-1. Output Level	1 kHz, 0 dB	Vrms	1.9	
3-2. S/N		dB	120	
3-3. Freq. Response				
DVD	fs = 48 kHz, 20 Hz ~ 22 kHz	dB	± 1.0	
CD	fs = 44.1 kHz, 20 Hz ~ 20 kHz	dB	± 1.0	
3-4. THD+N				
DVD	1 kHz, 0 dB	%	0.005	
CD	1 kHz, 0 dB	%	0.005	

Notes:

1. All Items are measured without pre-emphasis unless otherwise specified.
2. Power supply: AC 120 V, 60 Hz
3. Load Impedance: 100 kΩ load (Audio Output)
4. Room Ambient: +25 °C

LASER BEAM SAFETY PRECAUTIONS

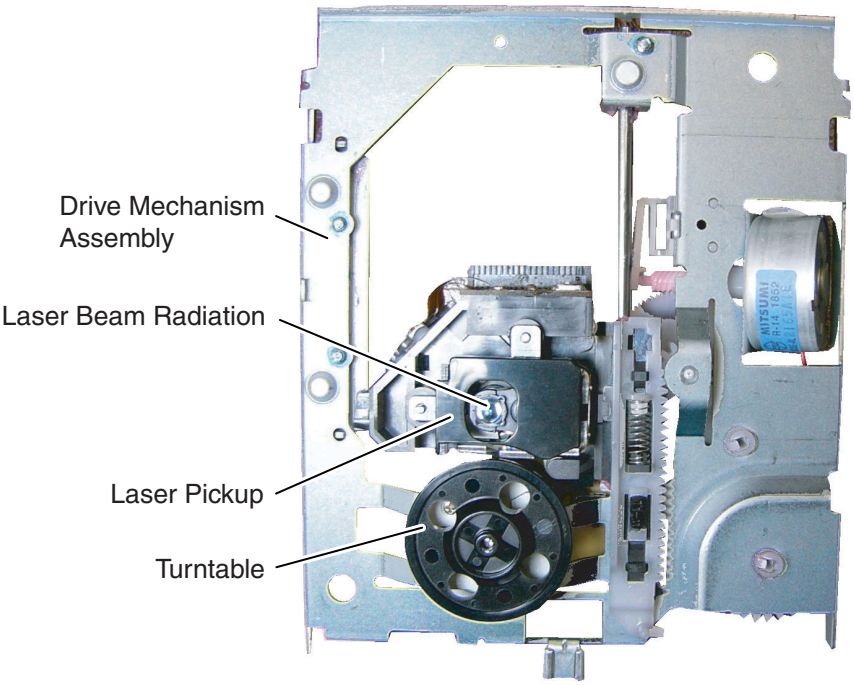
This DVD player uses a pickup that emits a laser beam.



Do not look directly at the laser beam coming from the pickup or allow it to strike against your skin.

The laser beam is emitted from the location shown in the figure. When checking the laser diode, be sure to keep your eyes at least 30 cm away from the pickup lens when the diode is turned on. Do not look directly at the laser beam.

CAUTION: Use of controls and adjustments, or doing procedures other than those specified herein, may result in hazardous radiation exposure.



CAUTION
LASER RADIATION
WHEN OPEN. DO NOT
STARE INTO BEAM.

Location: Top of DVD mechanism.

IMPORTANT SAFETY PRECAUTIONS

Product Safety Notice

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by a ⚠ on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The Product's Safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are carefully inspected to confirm with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Precautions during Servicing

A. Parts identified by the ⚠ symbol are critical for safety. Replace only with part number specified.

B. In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements. Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

C. Use specified internal wiring. Note especially:
1) Wires covered with PVC tubing
2) Double insulated wires
3) High voltage leads

D. Use specified insulating materials for hazardous live parts. Note especially:
1) Insulation tape
2) PVC tubing
3) Spacers
4) Insulators for transistors

E. When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

F. Observe that the wires do not contact heat producing parts (heat sinks, oxide metal film resistors, fusible resistors, etc.).

G. Check that replaced wires do not contact sharp edges or pointed parts.

H. When a power cord has been replaced, check that 5 - 6 kg of force in any direction will not loosen it.

I. Also check areas surrounding repaired locations.

J. Be careful that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

K. Crimp type wire connector
The power transformer uses crimp type connectors which connect the power cord and the primary side of the transformer. When replacing the transformer, follow these steps carefully and precisely to prevent shock hazards.
Replacement procedure
1) Remove the old connector by cutting the wires at a point close to the connector.
Important: Do not re-use a connector. (Discard it.)
2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.
3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.
4) Use a crimping tool to crimp the metal sleeve at its center. Be sure to crimp fully to the complete closure of the tool.

L. When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC outlet.

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts, and wires have been returned to their original positions. Afterwards, do the following tests and confirm the specified values to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1: Ratings for selected area

AC Line Voltage	Clearance Distance (d), (d')
120 V	≥ 3.2 mm (0.126 inches)

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

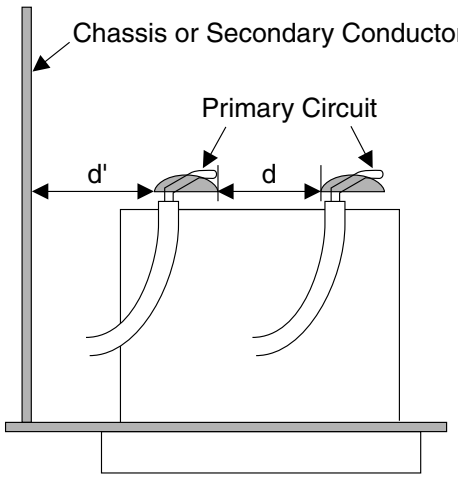


Fig. 1

2. Leakage Current Test

Confirm the specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) is lower than or equal to the specified value in the table below.

Measuring Method (Power ON):

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across the terminals of load Z. See Fig. 2 and the following table.

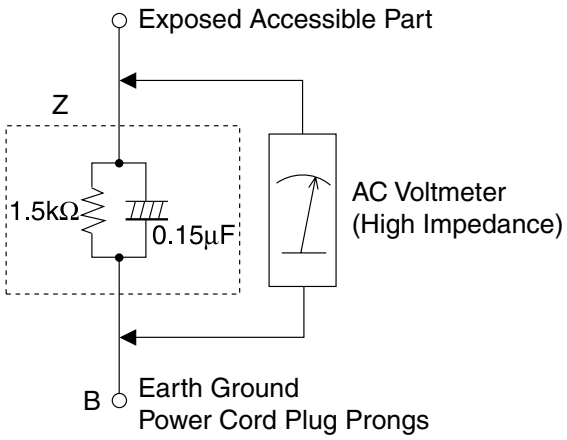


Fig. 2

Table 2: Leakage current ratings for selected areas

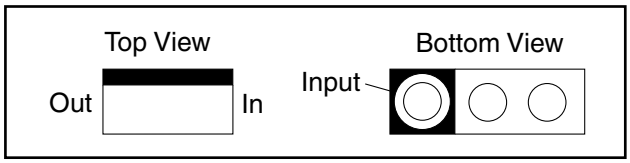
AC Line Voltage	Load Z	Leakage Current (i)	Earth Ground (B) to:
120 V	0.15 μF CAP. & 1.5 kΩ RES. Connected in parallel	i ≤ 0.5 mA Peak	Exposed accessible parts

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

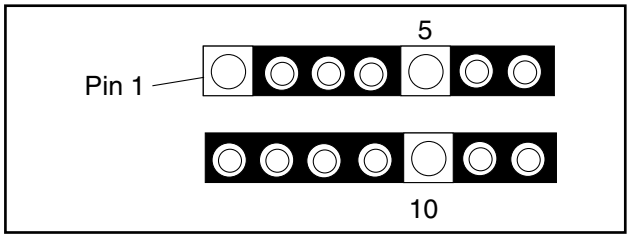
STANDARD NOTES FOR SERVICING

Circuit Board Indications

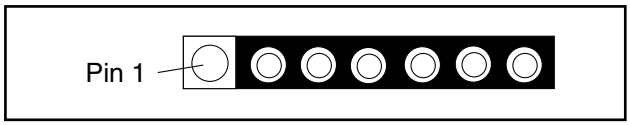
1. The output pin of the 3 pin Regulator ICs is indicated as shown.



2. For other ICs, pin 1 and every fifth pin are indicated as shown.

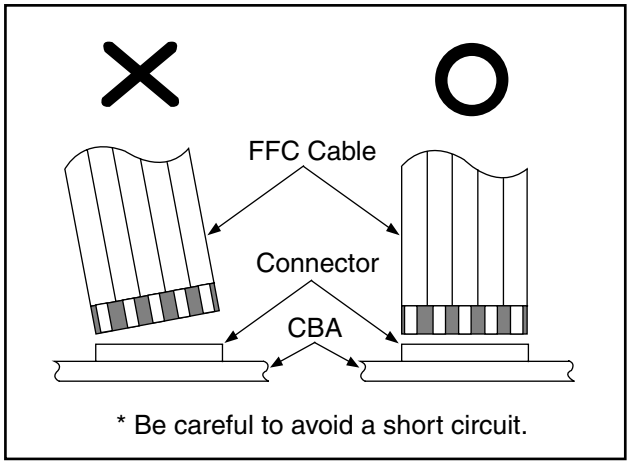


3. The 1st pin of every male connector is indicated as shown.



Instructions for Connectors

1. When you connect or disconnect the FFC (Flexible Foil Connector) cable, be sure to first disconnect the AC cord.
2. FFC (Flexible Foil Connector) cable should be inserted parallel into the connector, not at an angle.



Pb (Lead) Free Solder

When soldering, be sure to use the Pb free solder.

How to Remove / Install Flat Pack-IC

1. Removal

With Hot-Air Flat Pack-IC Desoldering Machine:

1. Prepare the hot-air flat pack-IC desoldering machine, then apply hot air to the Flat Pack-IC (about 5 to 6 seconds). (Fig. S-1-1)

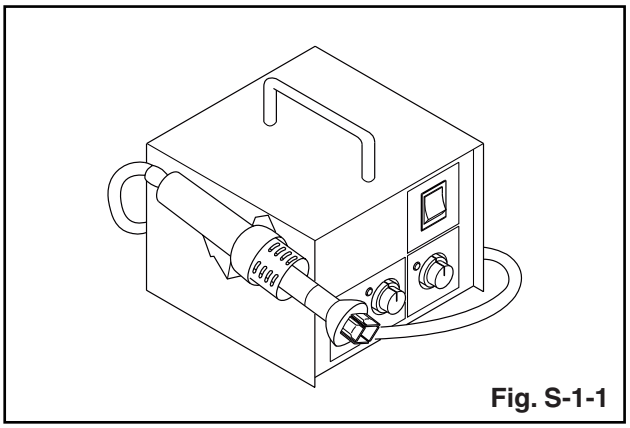


Fig. S-1-1

2. Remove the flat pack-IC with tweezers while applying the hot air.
3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

CAUTION:

1. The Flat Pack-IC shape may differ by models. Use an appropriate hot-air flat pack-IC desoldering machine, whose shape matches that of the Flat Pack-IC.
2. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape around the flat pack-IC to protect other parts from damage. (Fig. S-1-2)

3. The flat pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or the solder lands under the IC when removing it.

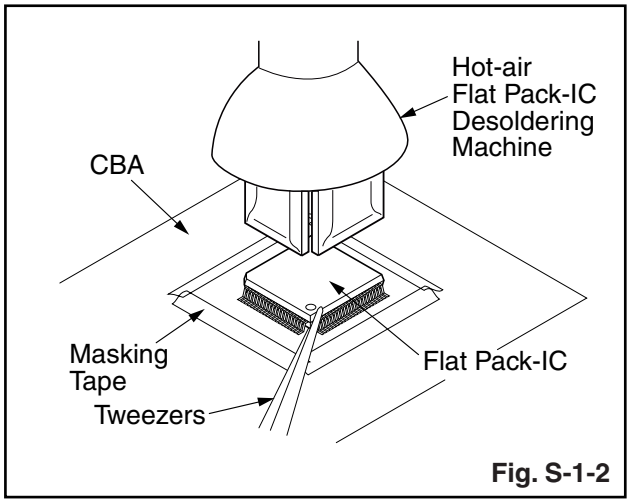


Fig. S-1-2

With Soldering Iron:

1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

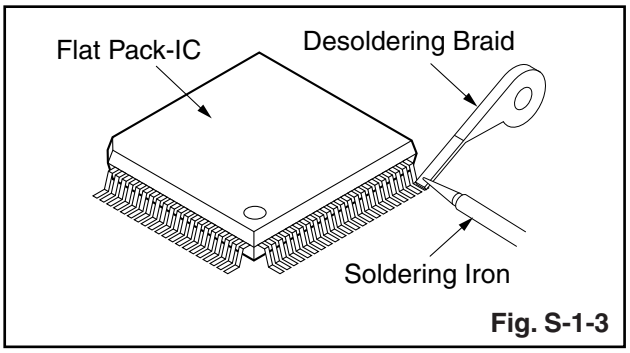


Fig. S-1-3

2. Lift each lead of the flat pack-IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air desoldering machine. (Fig. S-1-4)

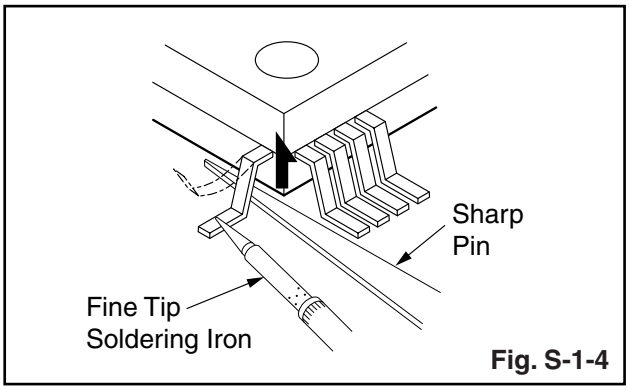


Fig. S-1-4

3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

With Iron Wire:

1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)
2. Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
3. While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig. S-1-5.
4. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
5. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Note: When using a soldering iron, care must be taken to ensure that the flat pack-IC is not being held by glue. When the flat pack-IC is removed from the CBA, handle it gently because it may be damaged if force is applied.

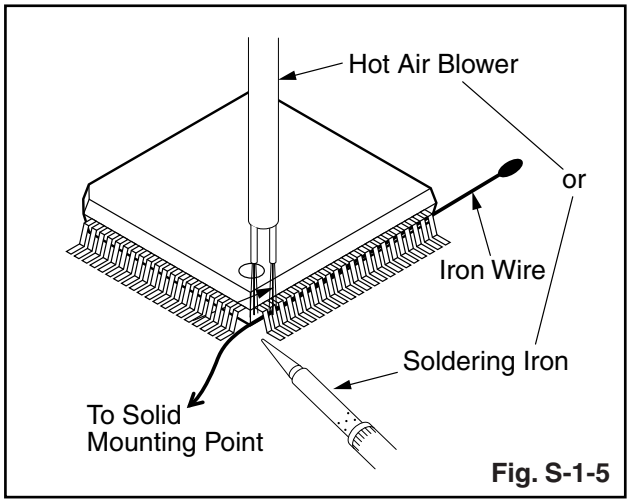


Fig. S-1-5

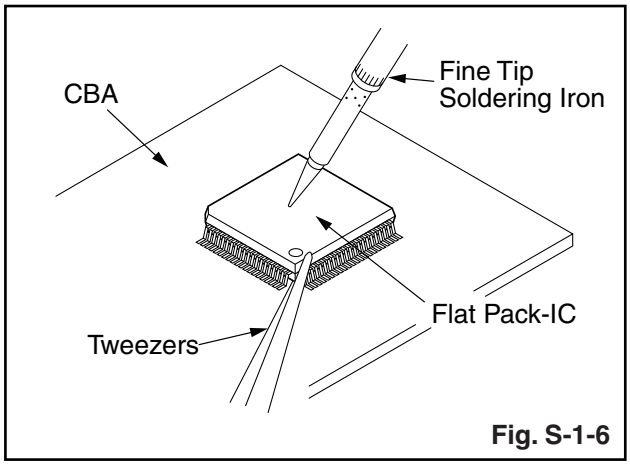


Fig. S-1-6

2. Installation

1. Using desoldering braid, remove the solder from the foil of each pin of the flat pack-IC on the CBA so you can install a replacement flat pack-IC more easily.
2. The "●" mark on the flat pack-IC indicates pin 1. (See Fig. S-1-7.) Be sure this mark matches the 1 on the PCB when positioning for installation. Then presolder the four corners of the flat pack-IC. (See Fig. S-1-8.)
3. Solder all pins of the flat pack-IC. Be sure that none of the pins have solder bridges.

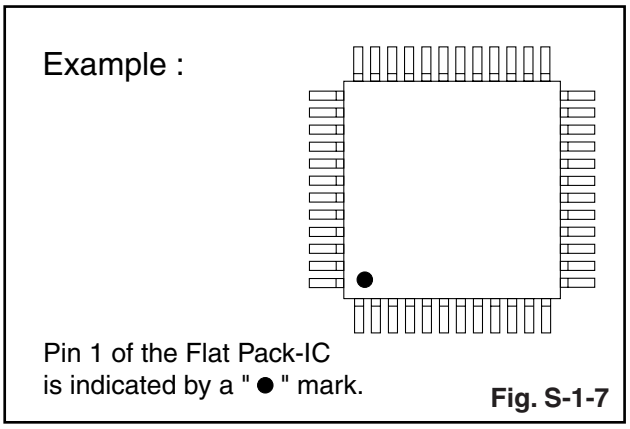


Fig. S-1-7

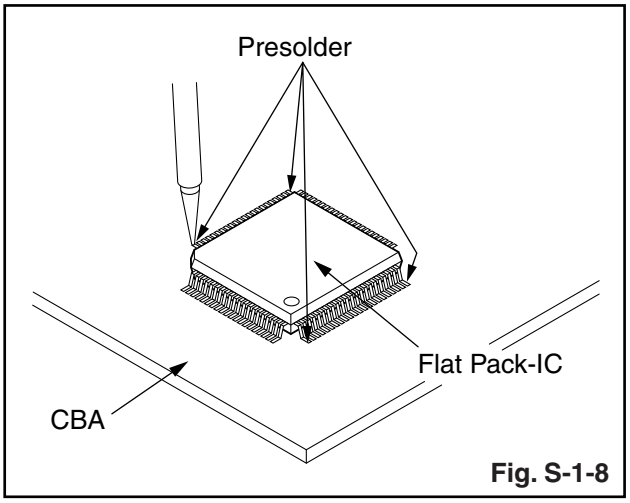


Fig. S-1-8

Instructions for Handling Semi-conductors

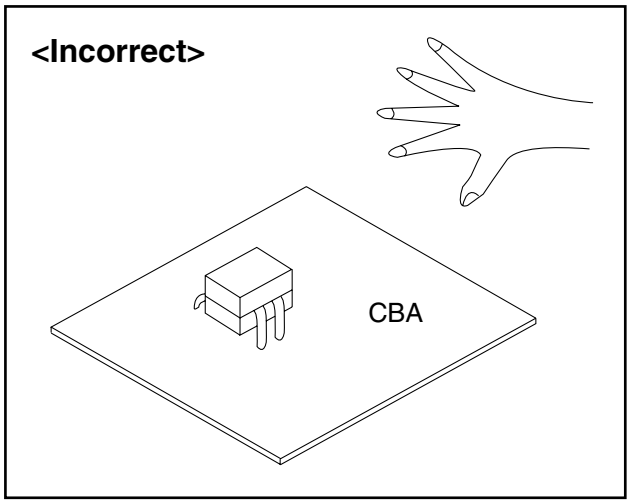
Electrostatic breakdown of the semi-conductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

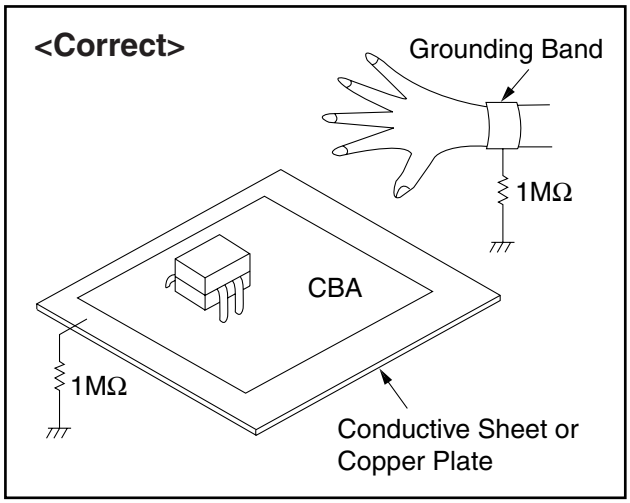
1. Ground for Human Body

Be sure to wear a grounding band (1 MΩ) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1 MΩ) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors with your clothing.

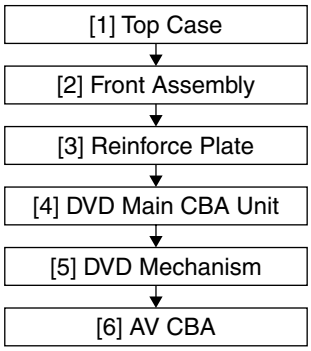




CABINET DISASSEMBLY INSTRUCTIONS

1. Disassembly Flowchart

This flowchart indicates the disassembly steps to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route, and dress the cables as they were originally.



2. Disassembly Method

ID/ Loc. No.	Part	Removal		
		Fig. No.	Remove/*Unhook/ Unlock/Release/ Unplug/Desolder	Note
[1]	Top Case	D1	2(S-1)	---
[2]	Front Assembly	D2	*3(L-1), *3(L-2)	1
[3]	Reinforce Plate	D3	2(S-2)	---
[4]	DVD Main CBA Unit	D4	(S-3), *CN201, *CN301, *CN401, *CN601	2
[5]	DVD Mechanism	D4 D5	4(S-4)	3
[6]	AV CBA	D6	(S-5), 4(S-6), *3(L-3)	---
↓ (1)	↓ (2)	↓ (3)	↓ (4)	↓ (5)

Note:

(1) Identification (location) No. of parts in the figures

(2) Name of the part

(3) Figure Number for reference

(4) Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P = Spring, L = Locking Tab, S = Screw,
CN = Connector
* = Unhook, Unlock, Release, Unplug, or Desolder
e.g. 2(S-2) = two Screws (S-2),
2(L-2) = two Locking Tabs (L-2)

(5) Refer to “Reference Notes.”

About tightening screws

When tightening screws, tighten them with the following torque.

Screws	Torque
(S-1), (S-2), (S-3), (S-4), (S-5), (S-6)	0.45 ± 0.05 N·m

Reference Notes

1. **CAUTION 1:** Locking Tabs (L-1) and (L-2) are fragile. Be careful not to break them.
   1) Release three Locking Tabs (L-1). Then, release three Locking Tabs (L-2).
   2) Remove the Front Assembly.
2. **CAUTION 2:** Electrostatic breakdown of the laser diode in the optical system block may occur as a potential difference caused by electrostatic charge accumulated on cloth, human body etc, during unpacking or repair work.
   To avoid damage of pickup follow next procedures.
   1) Short the three short lands of FPC cable with solder before removing the FFC cable (CN201) from it. If you disconnect the FFC cable (CN201), the laser diode of pickup will be destroyed. (Fig. D4)
   2) Disconnect Connectors (CN301), (CN401) and (CN601). Remove Screw (S-3) and lift the DVD Main CBA Unit. (Fig. D4)
3. **CAUTION 3:** When reassembling, confirm the FFC cable (CN201) is connected completely. Then remove the solder from the three short lands of FPC cable. (Fig. D4)

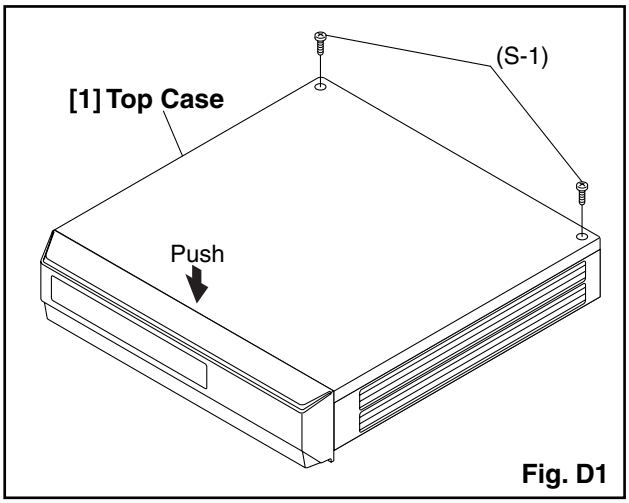
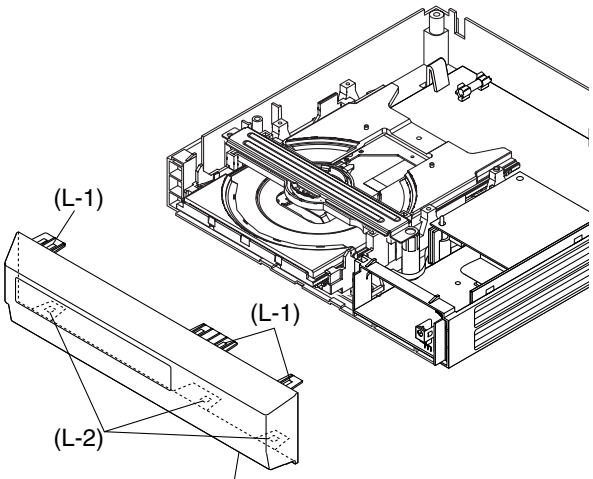
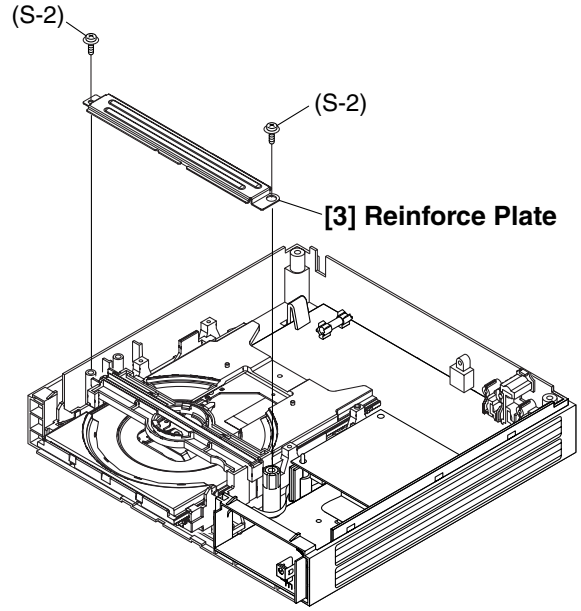


Fig. D1



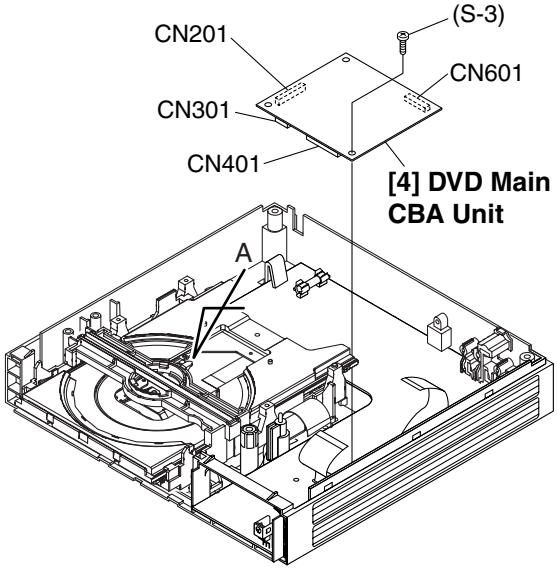
[2] Front Assembly

Fig. D2



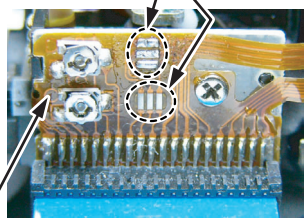
[3] Reinforce Plate

Fig. D3



[4] DVD Main CBA Unit

Short the three short lands by soldering.
(Either of two places.)



FPC Cable View for A

Fig. D4

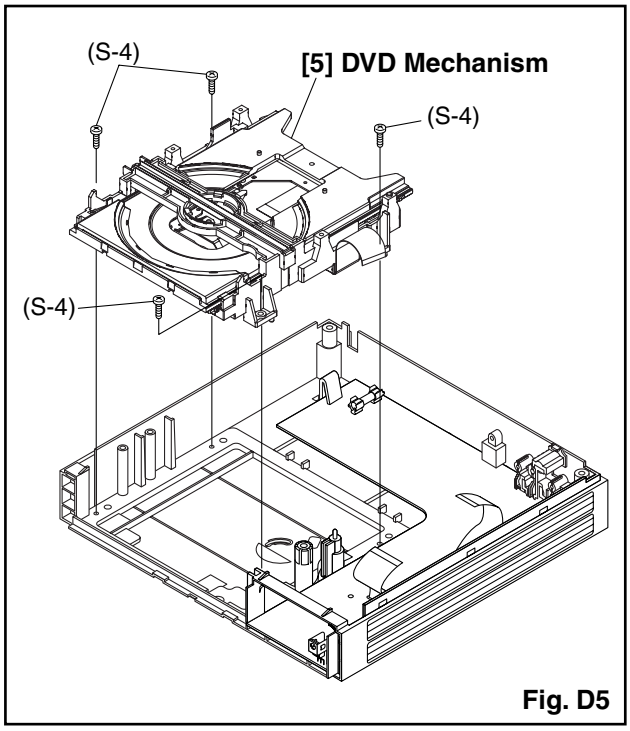


Fig. D5

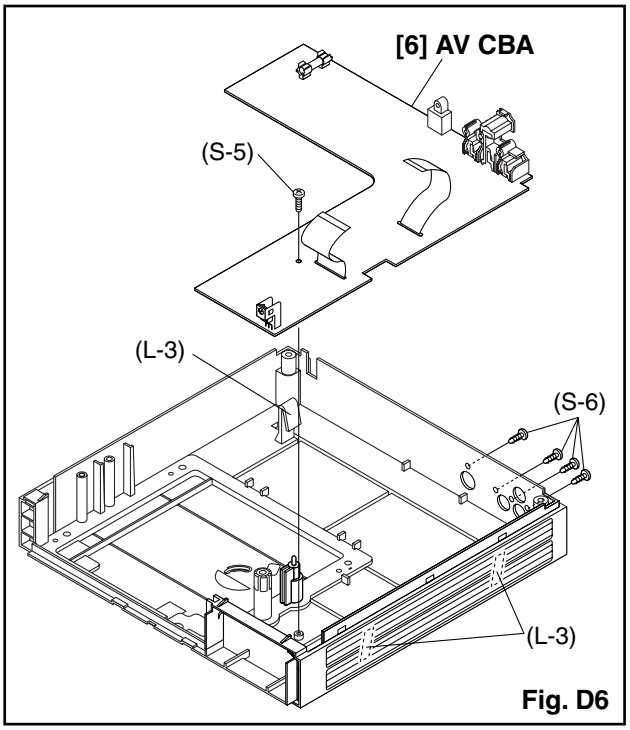
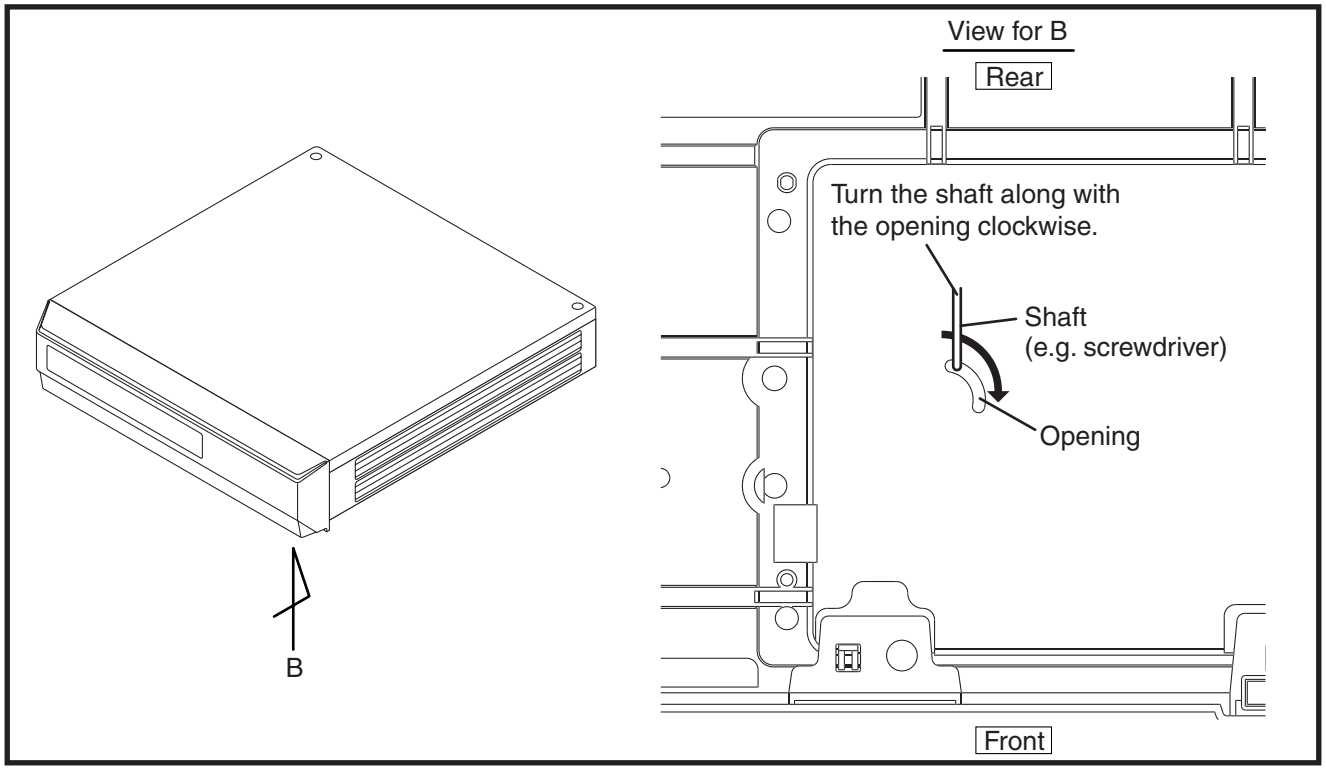


Fig. D6

3. How to Eject Manually

1. Turn the unit over.
2. Insert the shaft less than a diameter of 3 mm (e.g. screwdriver) straightly into the opening as shown.
3. Turn the shaft along with the opening clockwise.
4. Repeat steps 2 and 3 until the tray will open.
5. Pull the tray slowly manually.



HOW TO INITIALIZE THE DVD PLAYER

To put the program back at the factory-default, initialize the DVD player as the following procedure.

1. Press [1], [2], [3], [4], and [DISPLAY] buttons on the remote control unit in that order.
   Fig. a appears on the screen.

"*******" differ depending on the models.

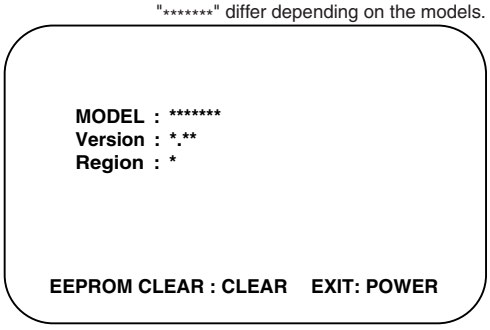


Fig. a

2. Press [CLEAR] button on the remote control unit.
   Fig. b appears on the screen.

"*******" differ depending on the models.

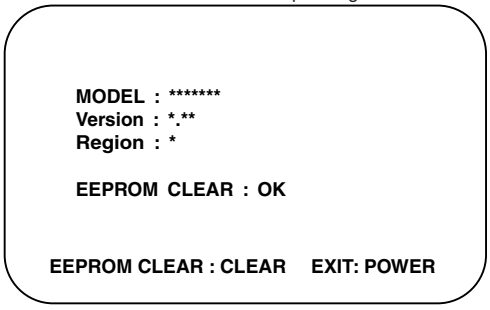


Fig. b

   When “OK” appears on the screen, the factory default will be set.

3. To exit this mode, press [STANDBY-ON] button.

FIRMWARE RENEWAL MODE

1. Turn the power on and remove the disc on the tray.
2. To put the DVD player into version up mode, press [9], [8], [7], [6], and [SEARCH MODE] buttons on the remote control unit in that order. The tray will open automatically.
   Fig. a appears on the screen.

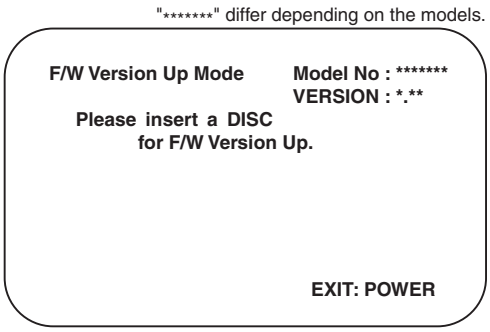


Fig. a Version Up Mode Screen

   The DVD player can also enter the version up mode with the tray open. In this case, Fig. a will be shown on the screen while the tray is open.

3. Load the disc for version up.
4. The DVD player enters the F/W version up mode automatically. Fig. c appears on the screen. If you enter the F/W for different models, “Disc Error” will appear on the screen, then the tray will open automatically.

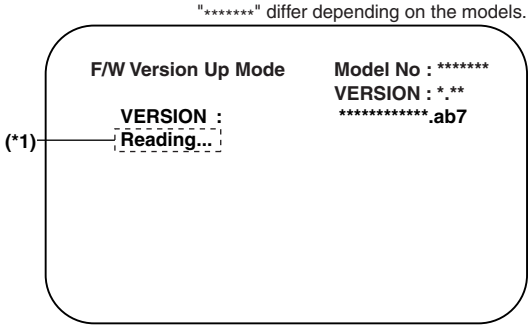


Fig. c Programming Mode Screen

   The appearance shown in (*1) of Fig. c is described as follows:

No.	Appearance	State
1	Reading...	Sending files into the memory
2	Erasing...	Erasing previous version data
3	Programming...	Writing new version data

5. After programming is finished, the tray opens automatically. Fig. e appears on the screen and the checksum will be shown in (*2) of Fig. e.

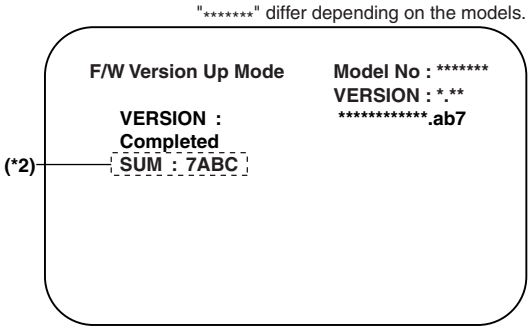


Fig. e Completed Program Mode Screen

   At this time, no button is available.

6. Remove the disc on the tray.
7. Unplug the AC cord from the AC outlet. Then plug it again.
8. Turn the power on by pressing the [STANDBY-ON] button and the tray will close.
9. Press [1], [2], [3], [4], and [DISPLAY] buttons on the remote control unit in that order.
   Fig. g appears on the screen.

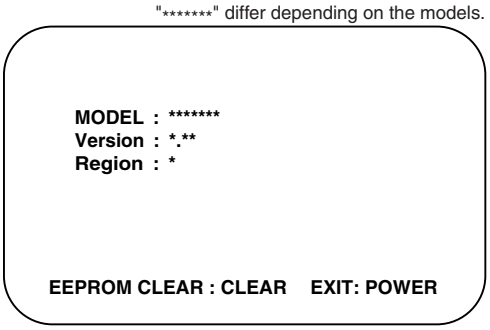


Fig. g

10. Press [CLEAR] button on the remote control unit.
    Fig. h appears on the screen.

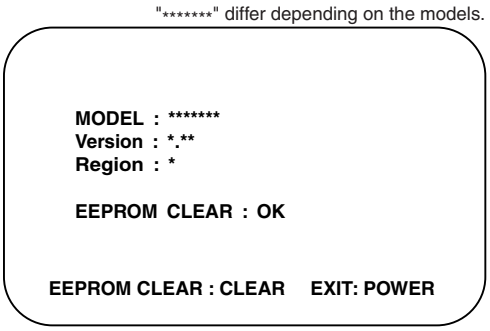


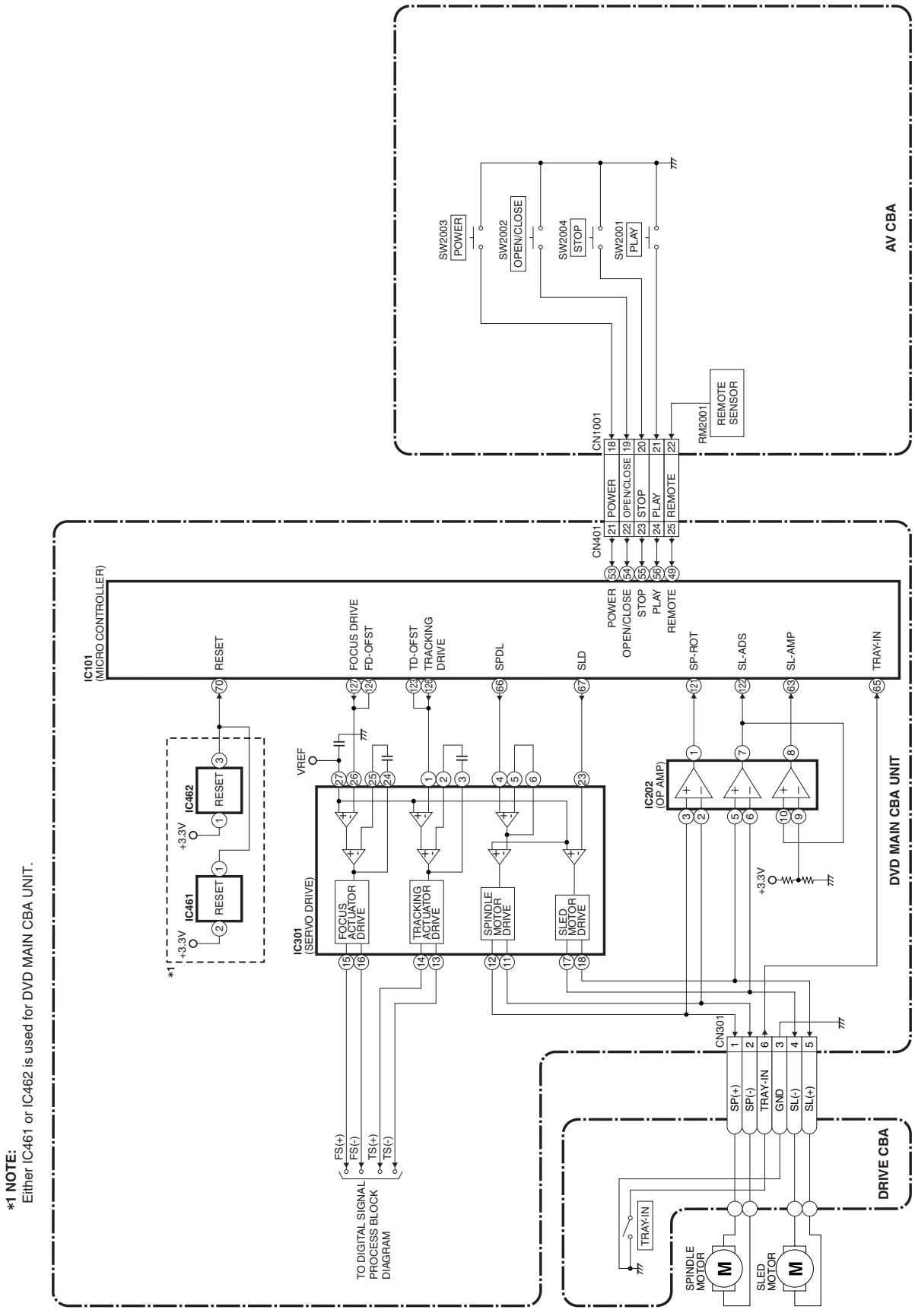
Fig. h

    When “OK” appears on the screen, the factory default will be set. Then the firmware renewal mode is complete.

11. To exit this mode, press [STANDBY-ON] button.

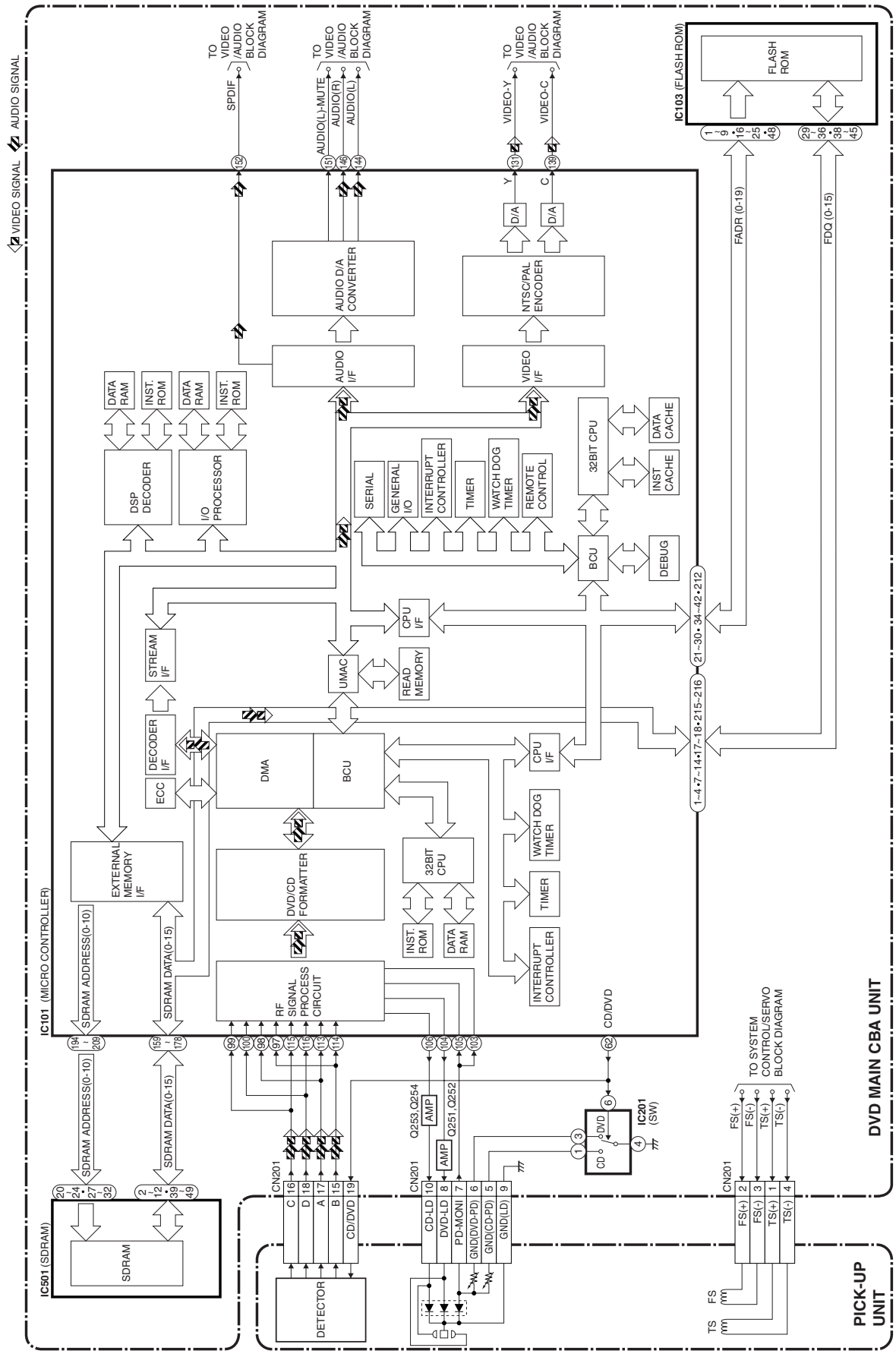
BLOCK DIAGRAMS

System Control / Servo Block Diagram

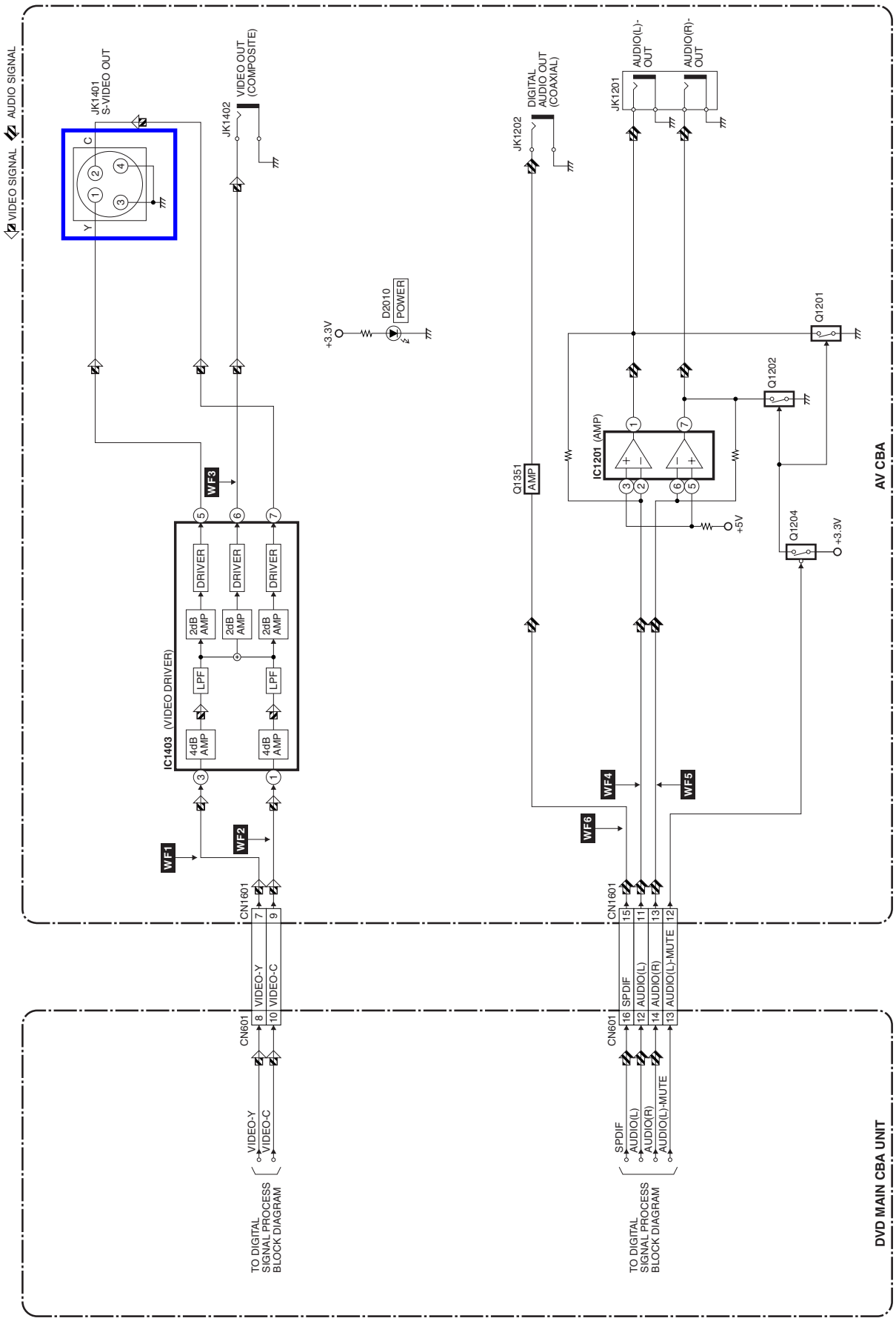


***1 NOTE:**
Either IC461 or IC462 is used for DVD MAIN CBA UNIT.

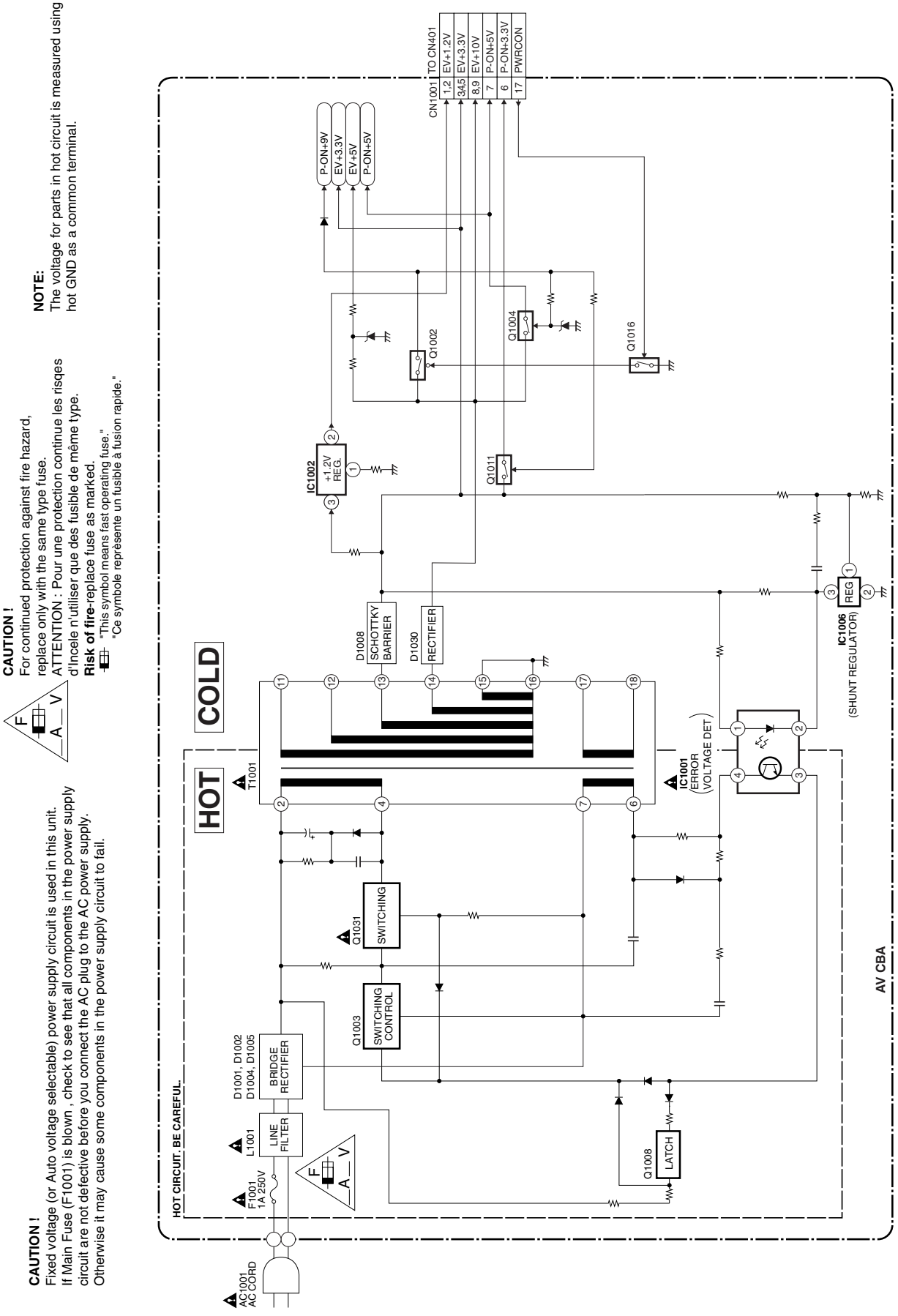
Digital Signal Process Block Diagram



Video / Audio Block Diagram



Power Supply Block Diagram


CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1001) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.
CAUTION !
For continued protection against fire hazard, replace only with the same type fuse.
ATTENTION : Pour une protection continue les risqes d'Incele n'utiliser que des fusible de même type.
Risk of fire-replace fuse as marked.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."
NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.
HOT CIRCUIT. BE CAREFUL.
HOT
COLD
AV CBA
AC1001 AC CORD
F1001 1A 250V
L1001 LINE FILTER
D1001, D1002 D1004, D1005 BRIDGE RECTIFIER
Q1003 SWITCHING CONTROL
Q1031 SWITCHING
T1001
D1008 SCHOTTKY BARRIER
D1030 RECTIFIER
IC1002 +1.2V REG.
Q1008 LATCH
IC1001 ERROR (VOLTAGE DET)
IC1006 REG (SHUNT REGULATOR)
Q1002
Q1004
Q1011
Q1016
P-ON+9V
EV+3.3V
EV+5V
P-ON+5V
CN1001 TO CN401
1,2 EV+1.2V
3,4,5 EV+3.3V
8,9 EV+10V
7 P-ON+5V
6 P-ON+3.3V
17 PWRCON

SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Standard Notes

WARNING

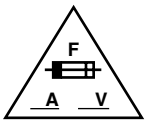
Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark "⚠" in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

Notes:

1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms ($K = 10^3$, $M = 10^6$).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in μF ($P = 10^{-6}$ μF).
5. All voltages are DC voltages unless otherwise specified.

LIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

1. CAUTION:



FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MÊME TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.

This symbol means fast operating fuse.
Ce symbole reprèsente un fusible à fusion rapide.

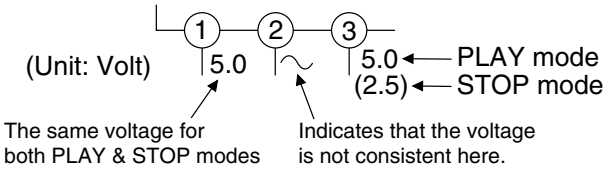
2. CAUTION:

Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1001) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

3. Note:

1. Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.
2. To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

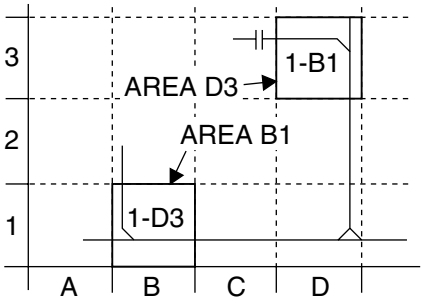
4. Voltage indications for PLAY and STOP mode on the schematics are as shown below:



5. How to read converged lines

1-D3
- Distinction Area
- Line Number (1 to 3 digits)

Examples:
1. "1-D3" means that line number "1" goes to the line number "1" of the area "D3".
2. "1-B1" means that line number "1" goes to the line number "1" of the area "B1".



6. Test Point Information

: Indicates a test point with a jumper wire across a hole in the PCB.

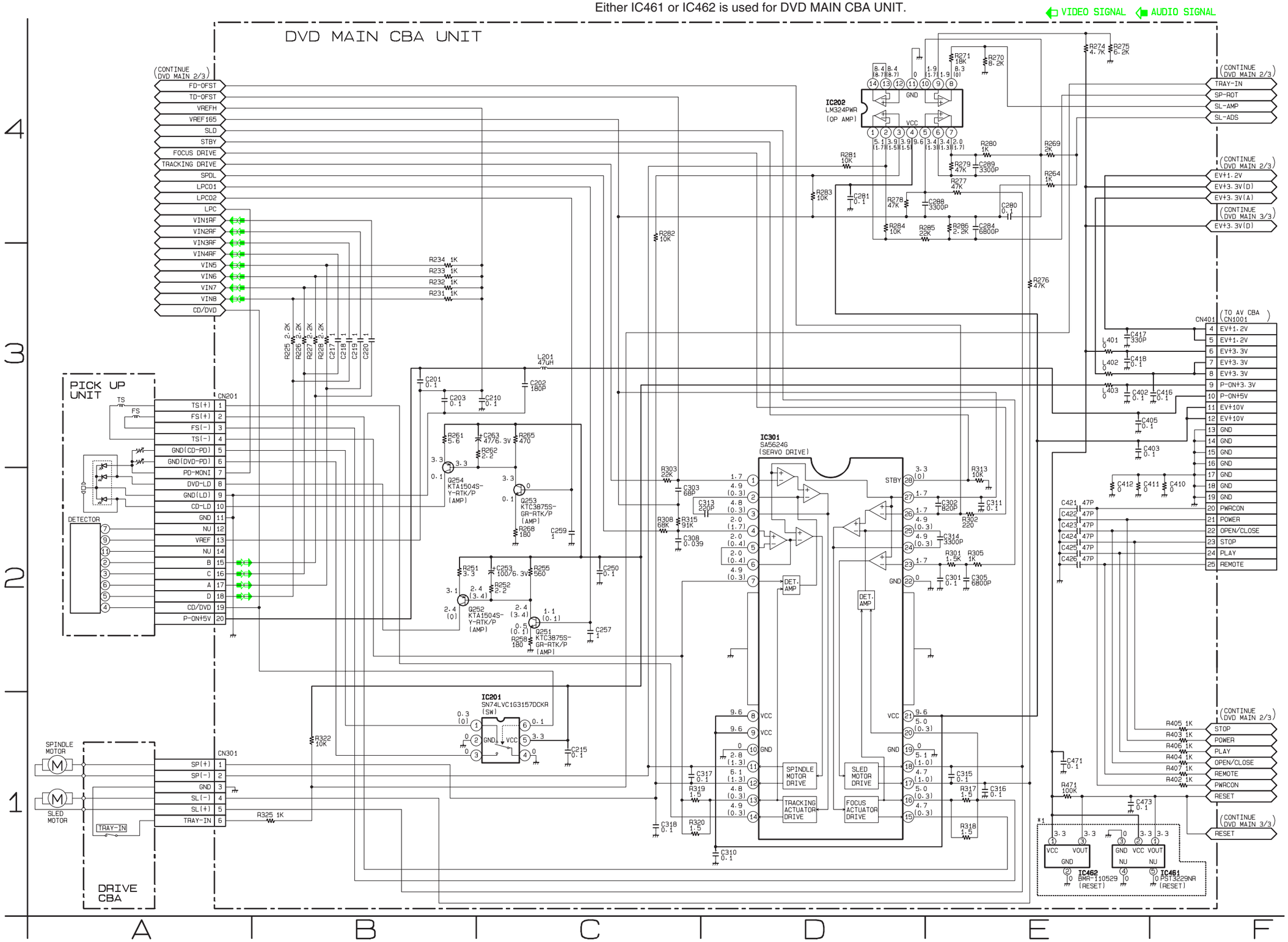
: Used to indicate a test point with a component lead on foil side.

: Used to indicate a test point with no test pin.

: Used to indicate a test point with a test pin.

DVD Main 1/3 Schematic Diagram

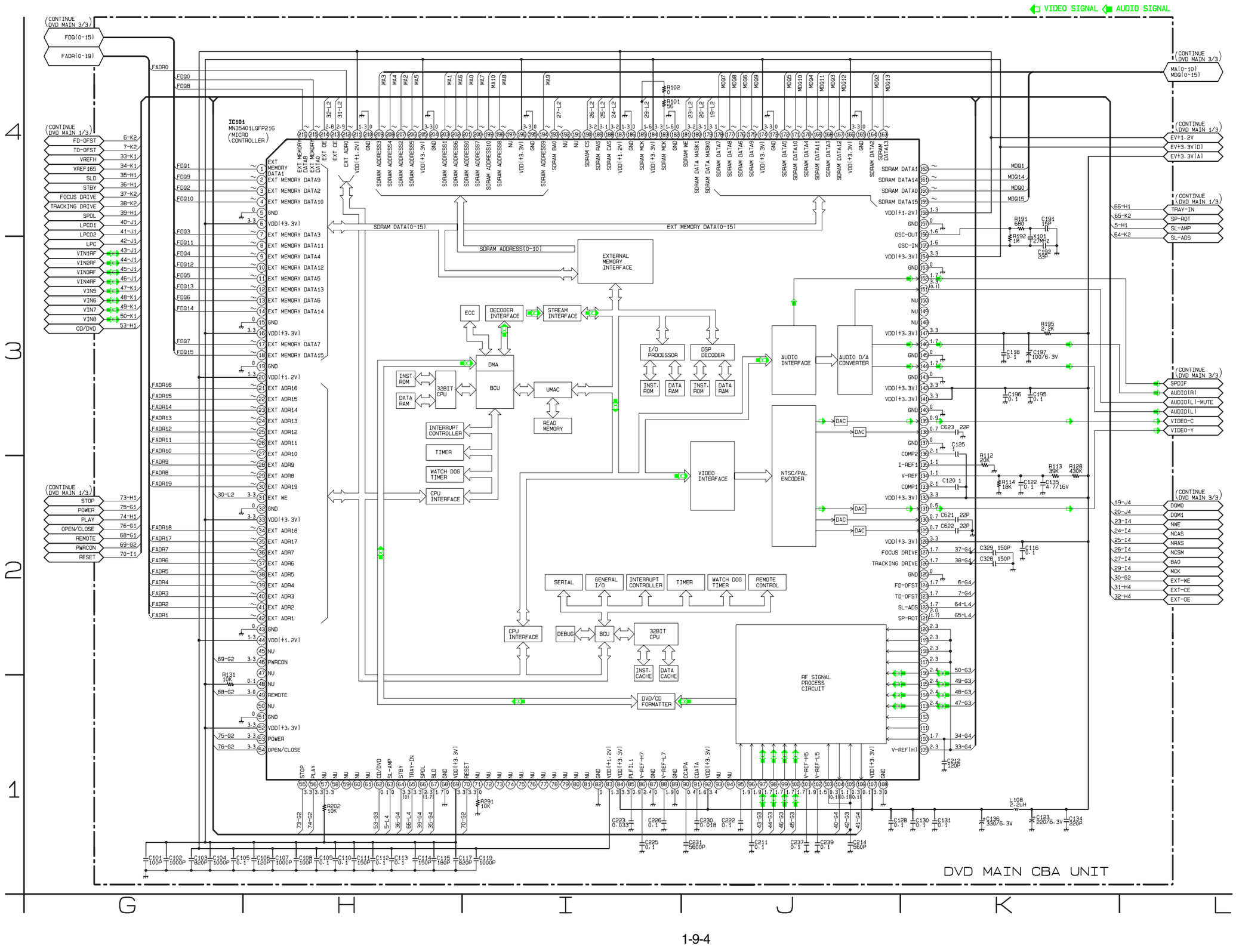
***1 NOTE:**
Either IC461 or IC462 is used for DVD MAIN CBA UNIT.



DVD MAIN 1/3

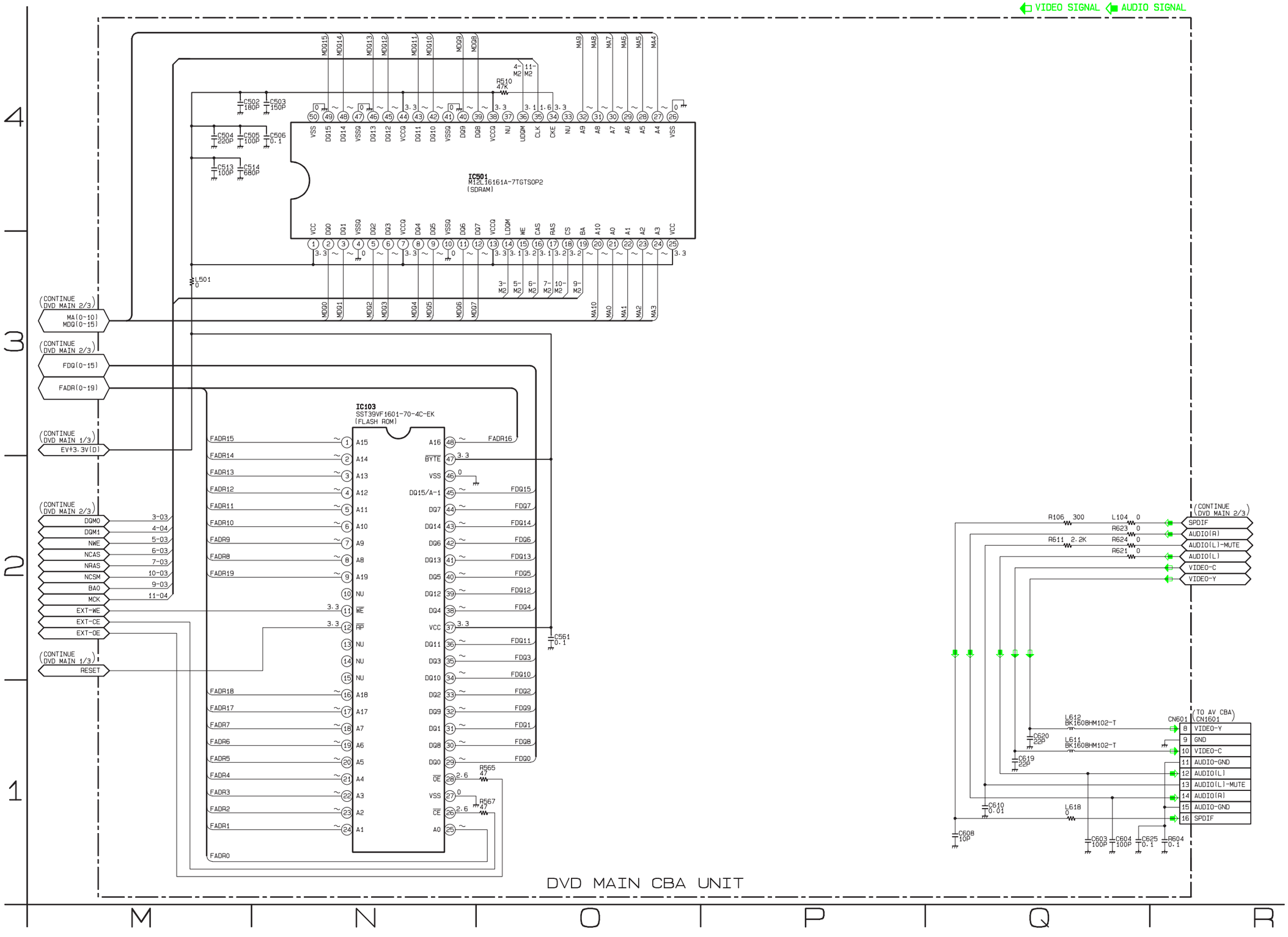
Ref No.	Position
ICS	
IC201	C-1
IC202	D-4
IC301	D-3
IC461	F-1
IC462	E-1
TRANSISTORS	
Q251	C-2
Q252	B-2
Q253	C-2
Q254	B-2
CONNECTORS	
CN201	A-3
CN301	A-1
CN401	F-3

DVD Main 2/3 Schematic Diagram



E6A60SCD2

DVD Main 3/3 Schematic Diagram



DVD MAIN 3/3

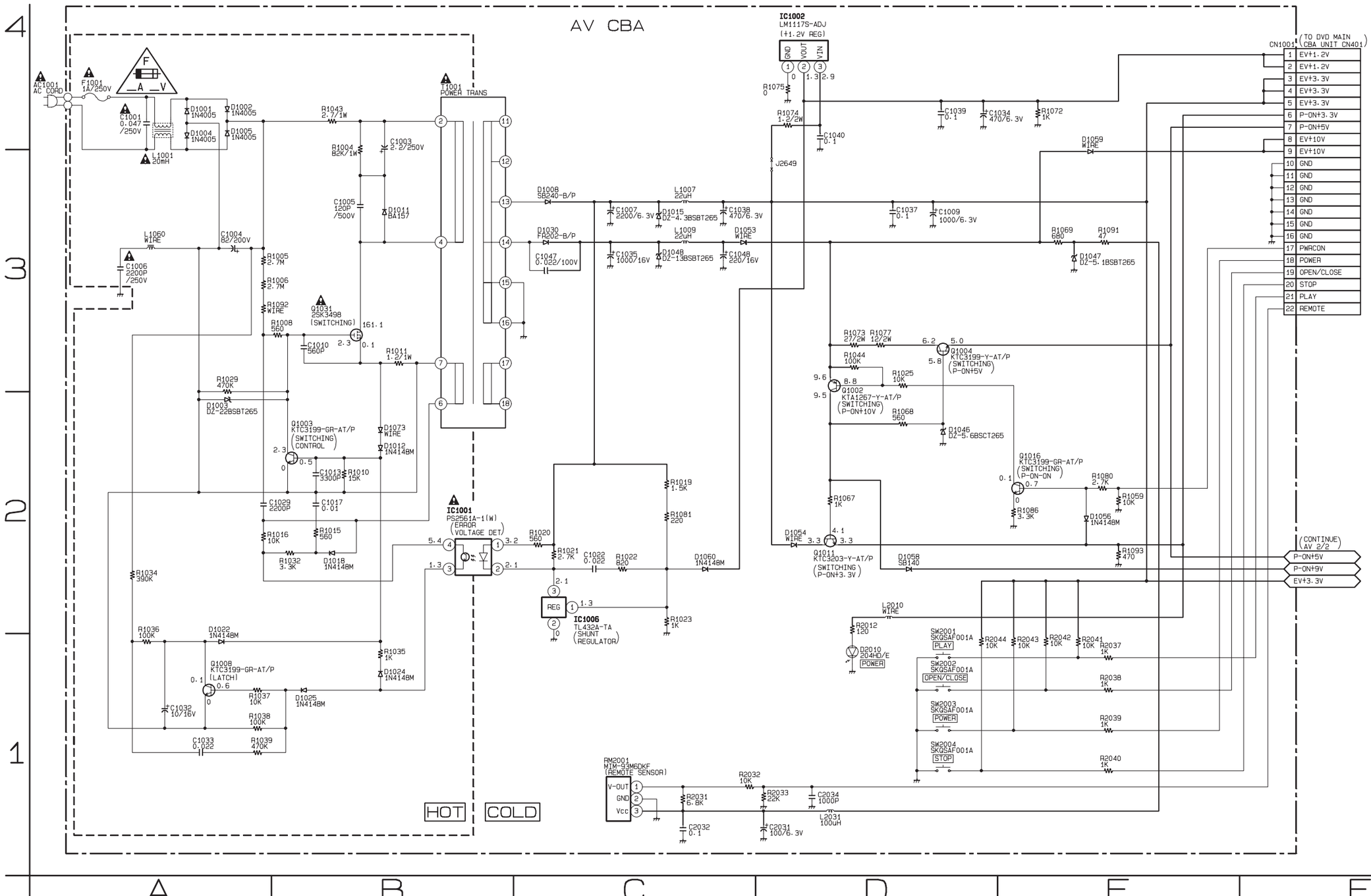
Ref No.	Position
ICS	
IC103	N-3
IC501	O-4
CONNECTOR	
CN601	R-1

AV 1/2 Schematic Diagram

CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1001) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

CAUTION !
For continued protection against fire hazard, replace only with the same type fuse.
ATTENTION : Pour une protection continue les risqes d'Incele n'utiliser que des fusible de même type.
Risk of fire-replace fuse as marked.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

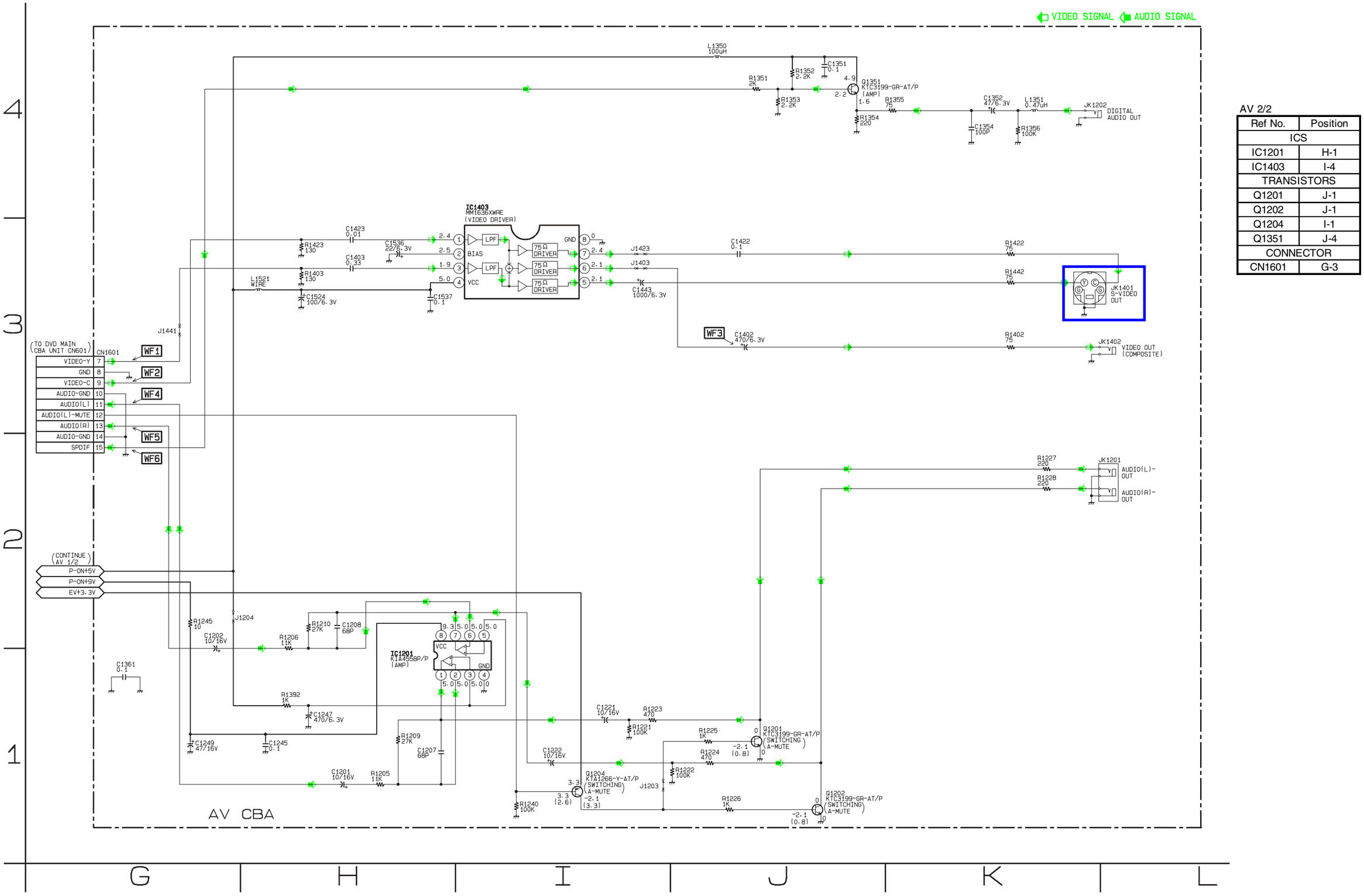
NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.



AV 1/2

Ref No.	Position
ICS	
IC1001	B-2
IC1002	D-4
IC1006	C-2
TRANSISTORS	
Q1002	D-2
Q1003	B-2
Q1004	D-3
Q1008	A-1
Q1011	D-2
Q1016	E-2
Q1031	B-3
CONNECTOR	
CN1001	F-4

AV 2/2 Schematic Diagram

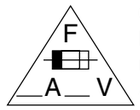


AV 2/2

Ref No.	Position
ICS	
IC1201	H-1
IC1403	I-4
TRANSISTORS	
Q1201	J-1
Q1202	J-1
Q1204	I-1
Q1351	J-4
CONNECTOR	
CN1601	G-3

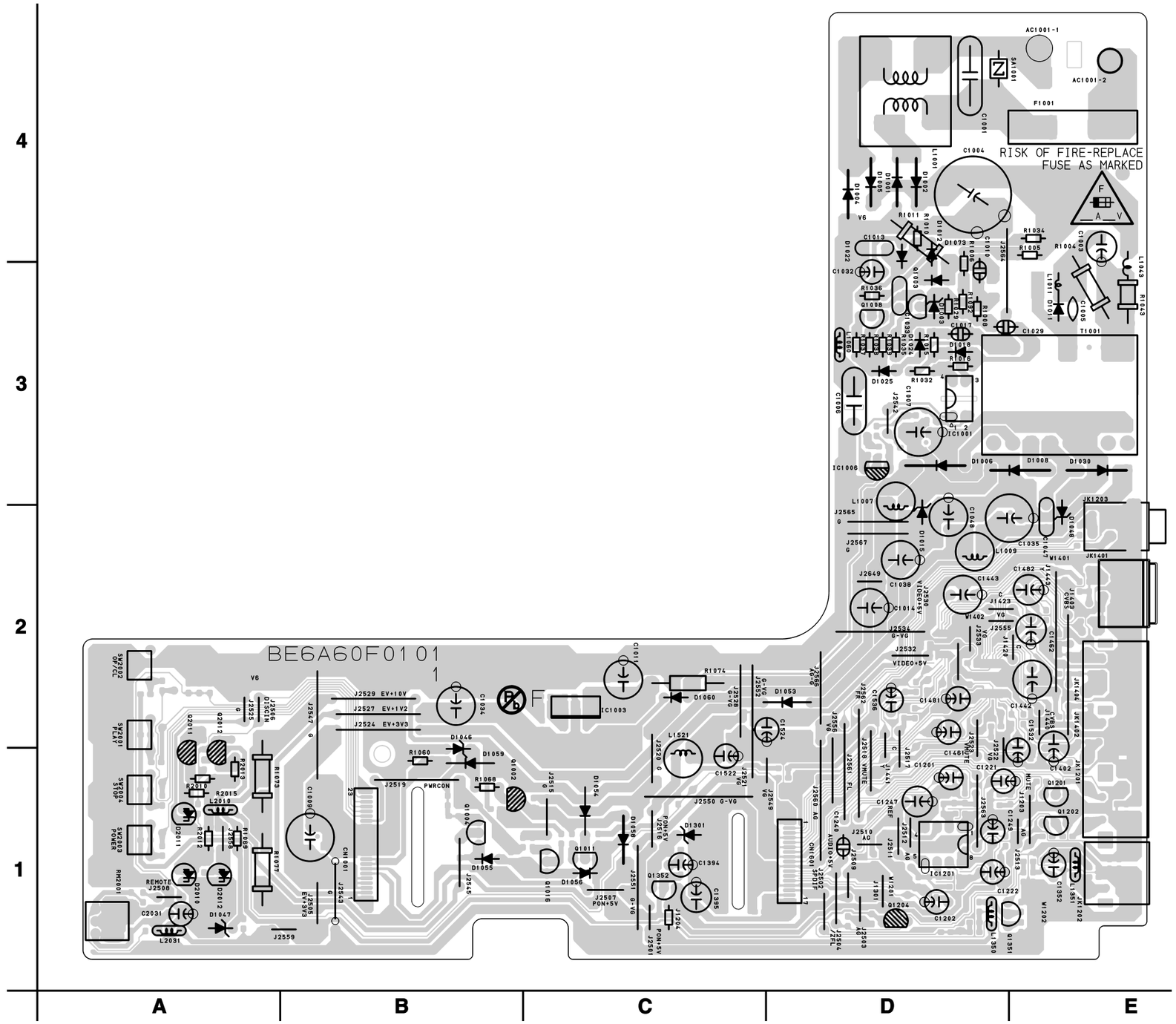
AV CBA Top View

CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1001) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.



CAUTION !
For continued protection against fire hazard, replace only with the same type fuse.
ATTENTION : Pour une protection continue les risqes d'Incele n'utiliser que des fusible de même type.
Risk of fire-replace fuse as marked.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

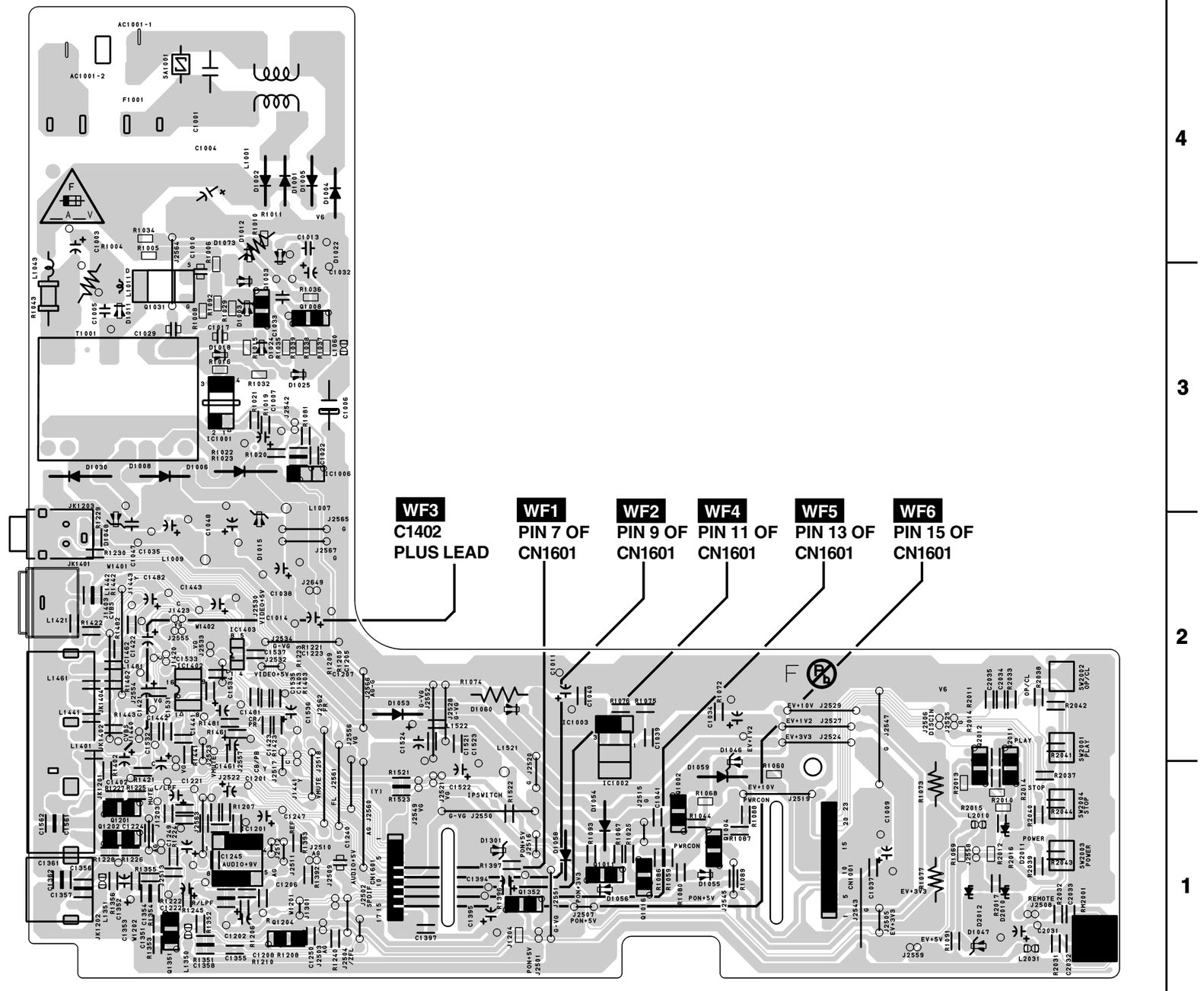


AV CBA Bottom View

CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1001) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

CAUTION !
For continued protection against fire hazard,
replace only with the same type fuse.
ATTENTION : Pour une protection continue les risqes d'Incele n'utiliser que des fusible de même type.
Risk of fire-replace fuse as marked.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

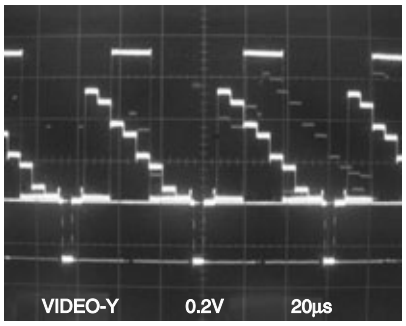


AV CBA

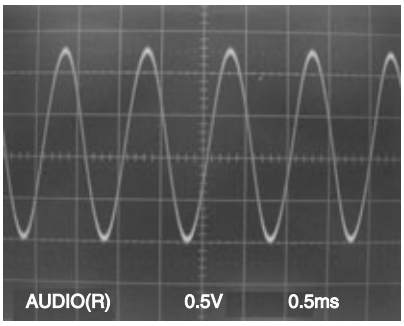
Ref No.	Position
ICS	
IC1001	D-3
IC1002	C-1
IC1006	D-3
IC1201	D-1
IC1403	D-2
TRANSISTORS	
Q1002	B-1
Q1003	D-3
Q1004	B-1
Q1008	D-3
Q1011	C-1
Q1016	C-1
Q1031	E-3
Q1201	E-1
Q1202	E-1
Q1204	D-1
Q1351	E-1
CONNECTORS	
CN1001	B-1
CN1601	D-1

WAVEFORMS

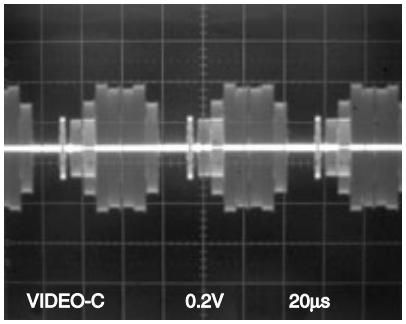
WF1 Pin 7 of CN1601



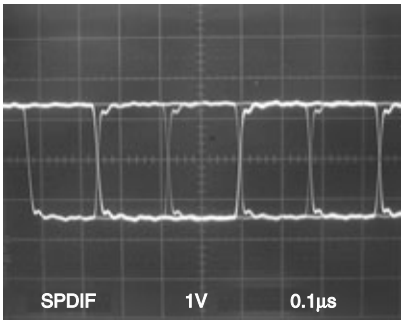
WF5 Pin 13 of CN1601



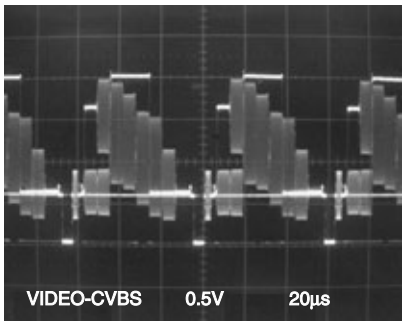
WF2 Pin 9 of CN1601



WF6 Pin 15 of CN1601



WF3 C1402 PLUS LEAD

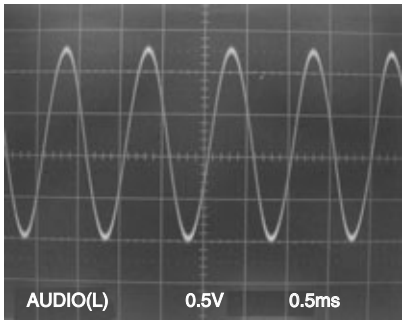


NOTE:

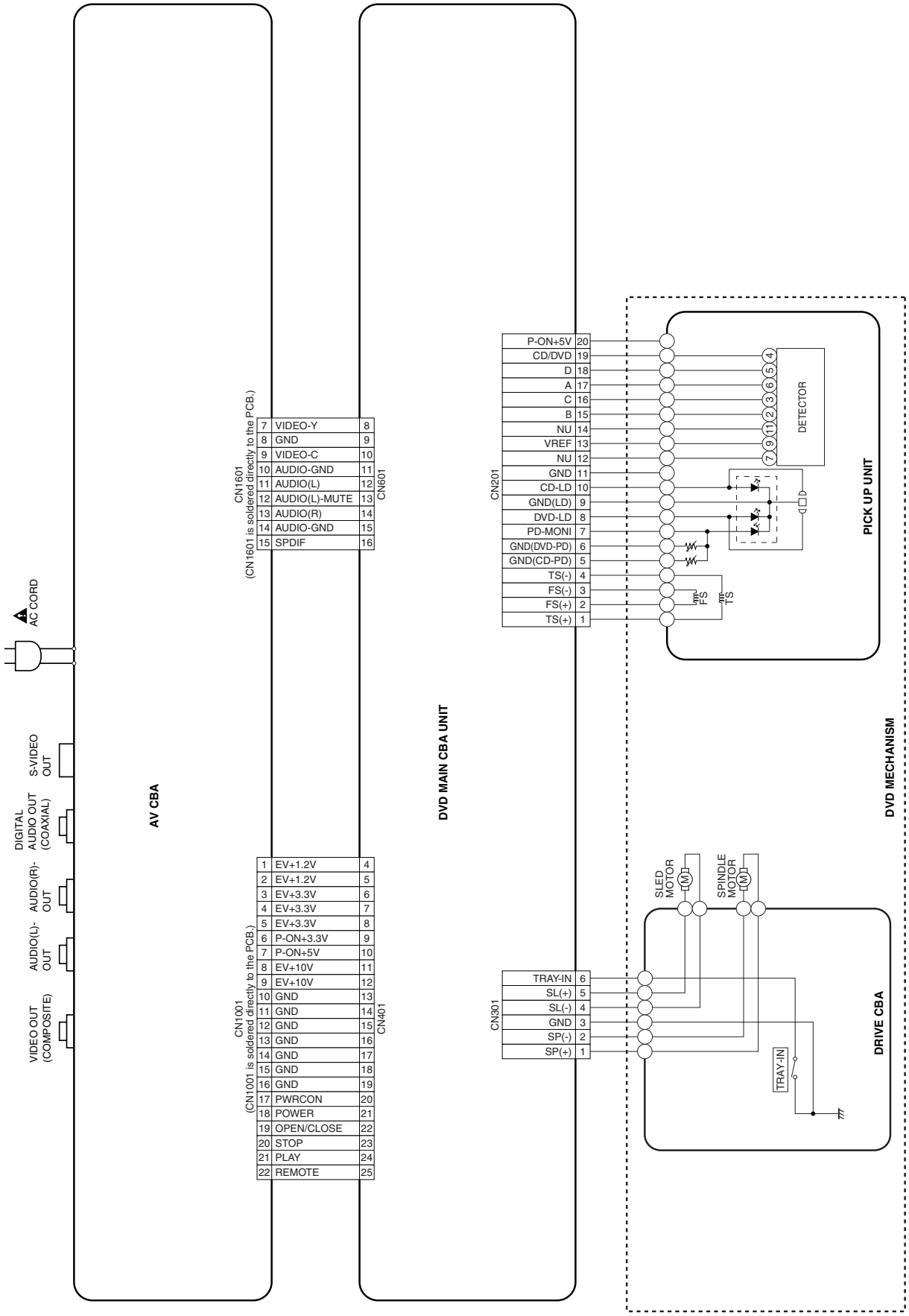
Input

DVD: COLOR BAR SIGNAL (WITH 1KHz AUDIO SIGNAL)
(WF1~WF6)

WF4 Pin 11 of CN1601

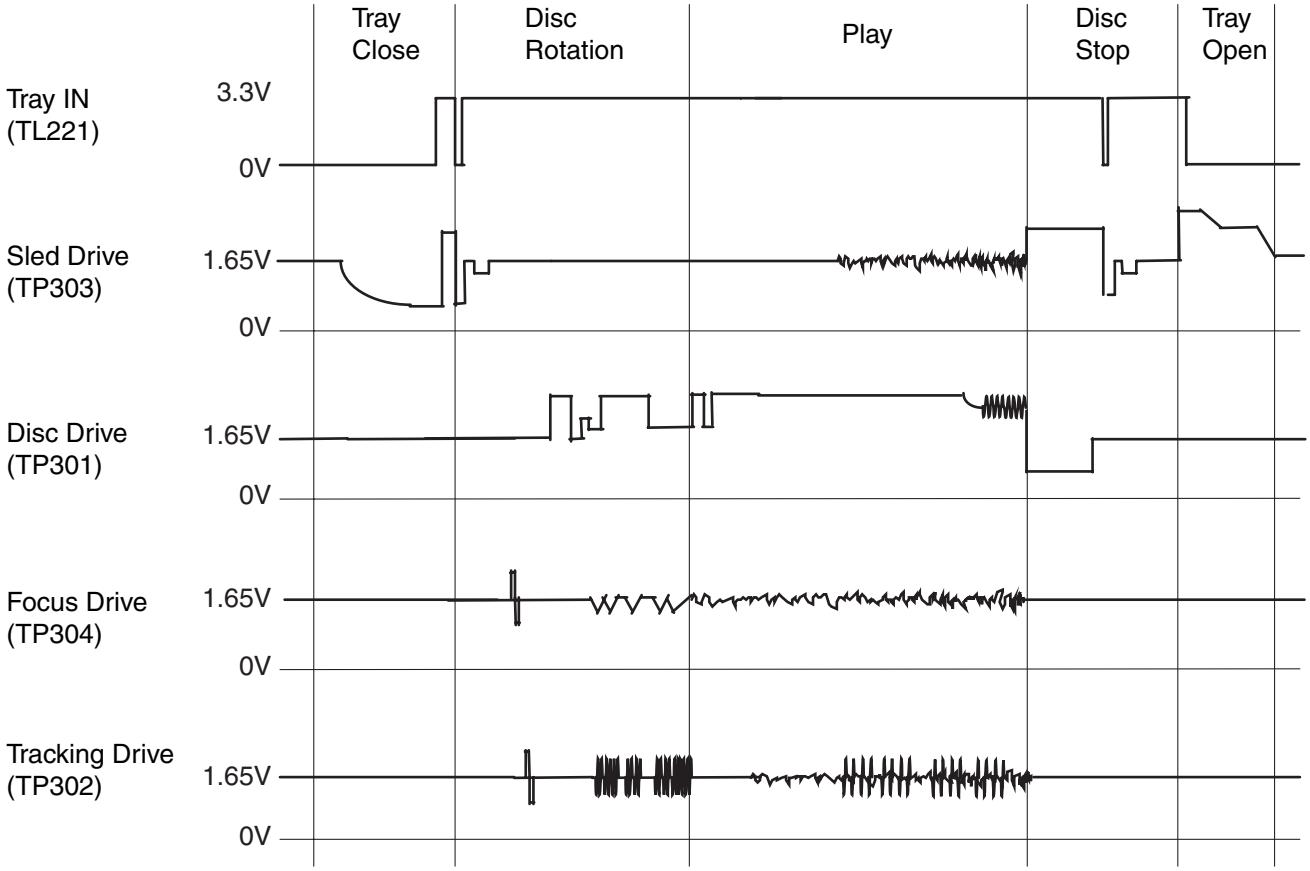


WIRING DIAGRAM

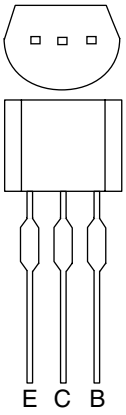


SYSTEM CONTROL TIMING CHARTS

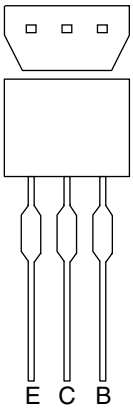
Tray Close ~ Play / Play ~ Tray Open



LEAD IDENTIFICATIONS

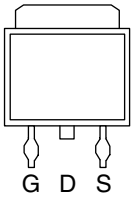


KTA1266-Y-AT/P
KTC3203-Y-AT/P

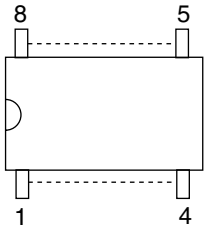


KTA1267-Y-AT/P
KTC3199-GR-AT/P
KTC3199-Y-AT/P

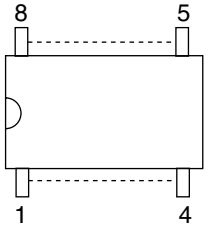
2SK3498



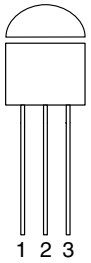
KIA4558P/P



MM1636XWRE



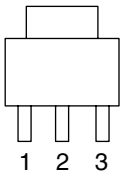
TL432A-TA



PS2561A-1(W)

1: A
2: K
3: E
4: C

LM1117S-ADJ

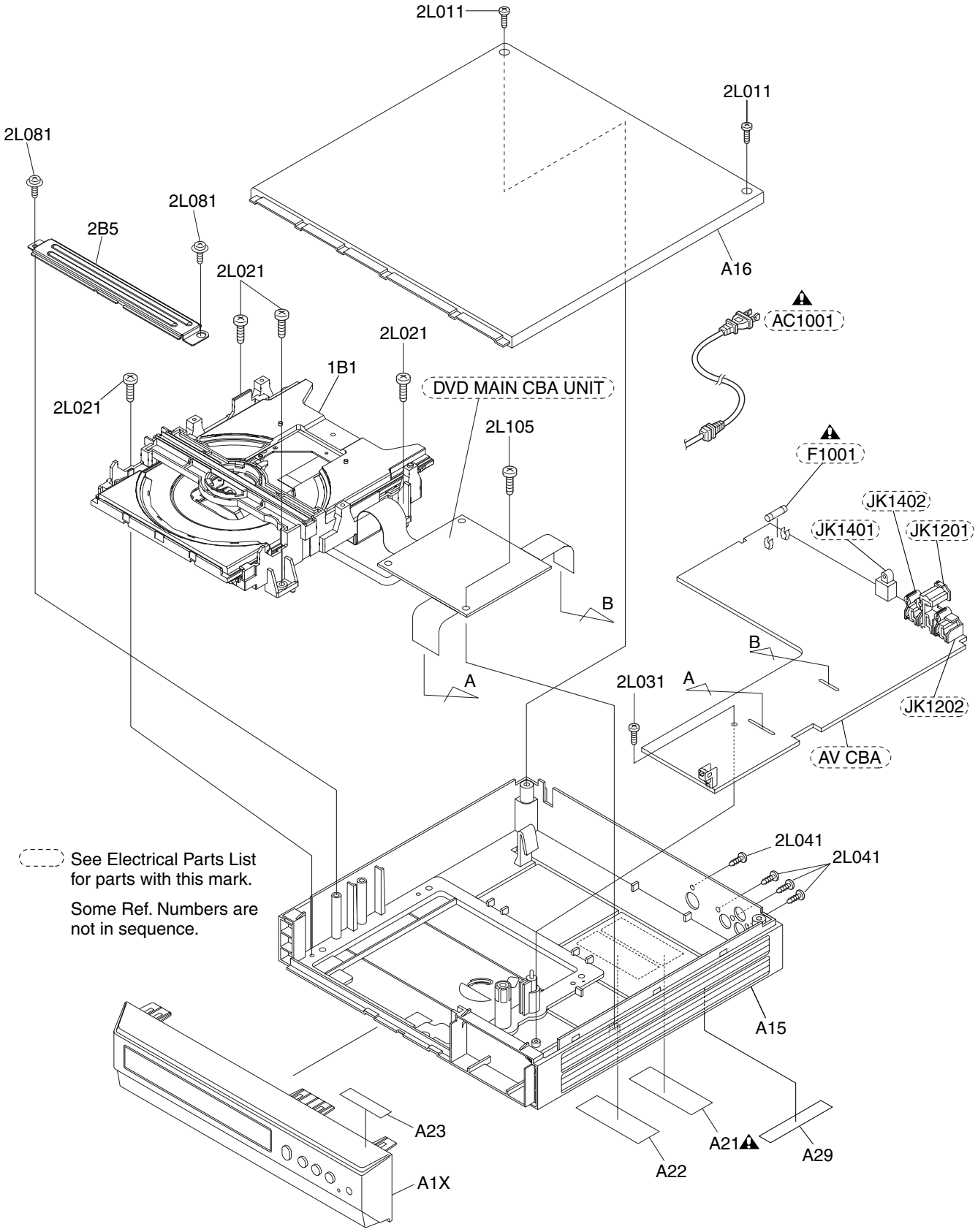


1: GND
2: Vout
3: Vin

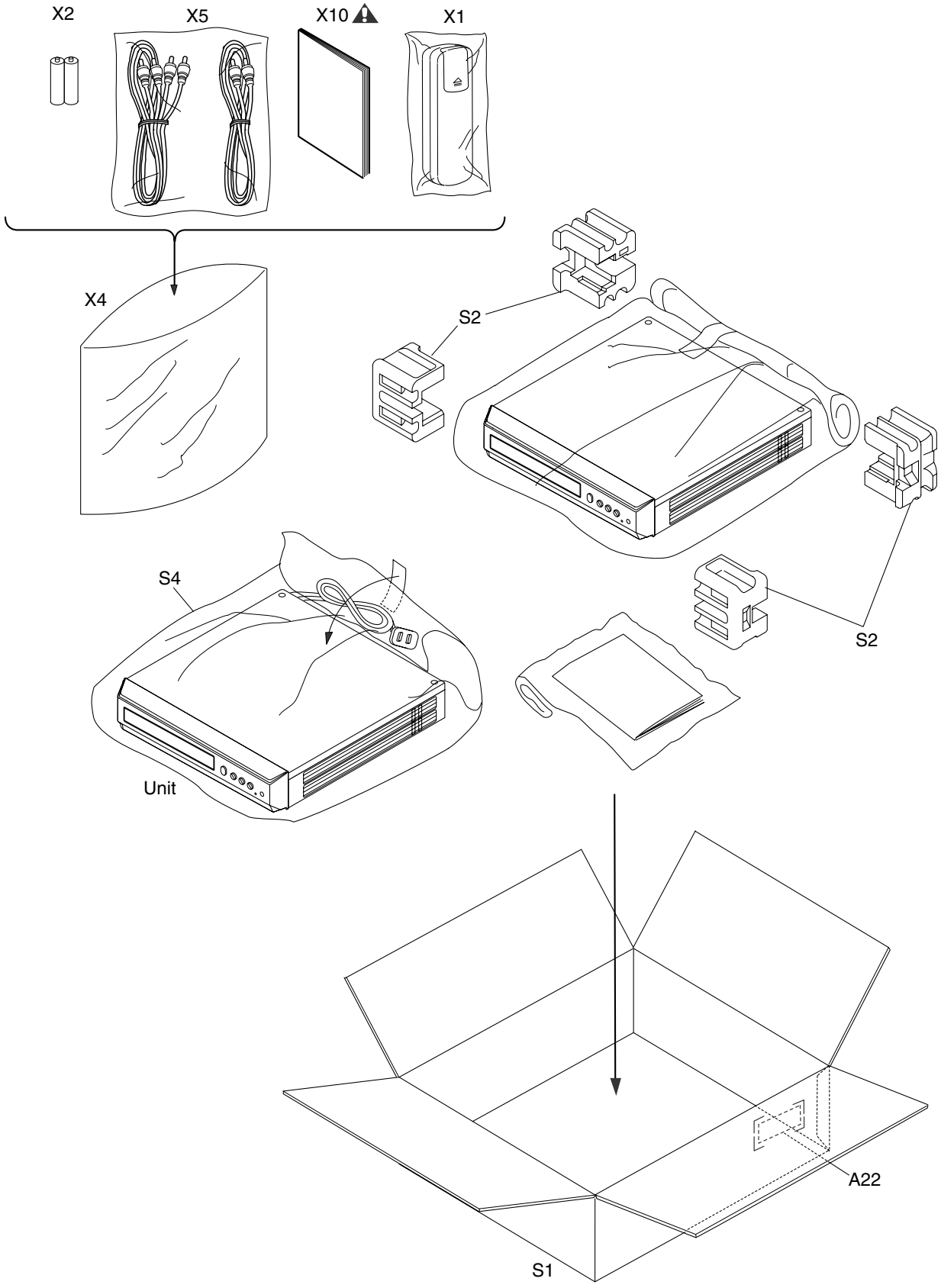
Note:
A: Anode
K: Cathode
E: Emitter
C: Collector
B: Base
R: Reference
G: Gate
D: Drain
S: Source

EXPLODED VIEWS

Cabinet



Packing



MECHANICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTE: Parts that are not assigned part numbers (---------) are not available.

Comparison Chart of Models and Marks

Model	Mark
MWD200FA	A
MWD200G	B

Ref. No.	Mark	Description	Part No.
A1X	A	FRONT ASSEMBLY E6A60UD	1VM322025
A1X	B	FRONT ASSEMBLY E6AA0UD	1VM221762
A15	A	CHASSIS ASSEMBLY E6A60UD	1VM322024
A15	B	CHASSIS ASSEMBLY E6AA0UD	1VM322218
A16	A	TOP CASE E6160UD	1VM120047C
A16	B	TOP CASE E6150UD	1VM320703B
A21⚠	A	MODEL NO. LABEL E6A60UD	----------
A21⚠	B	MODEL NO. LABEL E6AA0UD	----------
A22		LABEL BAR CODE E5900UD	----------
A23		TELEPHONE NO. LABEL H9670UD	----------
A29		LABEL EAS L0951UB	----------
1B1		DVD MECHA E7 N79F0KVM	N79F0KVM
2B5		REINFORCE PLATE E6A60UD	1VM321919
2L011		SCREW P-TIGHT 3X10 BIND HEAD+	GBHP3100
2L021		SCREW TAP TIGHT M3X11 BIND+ P-TIGHT	GBJP3110
2L031		SCREW P-TIGHT M3X8 BIND HEAD+	GBJP3080
2L041		SCREW B-TIGHT M3X8 BIND HEAD+	GBHB3080
2L081		SCREW TAP TIGHT WASHER+ P-TIGHT	GCJP3080
2L105		SCREW P-TIGHT M3X8 BIND HEAD+	GBJP3080
PACKING			
S1	A	GIFT BOX CARTON E6A60UD	1VM322027
S1	B	GIFT BOX CARTON E6AA0UD	1VM322188
S2		SIDE PAD E6160UD	1VM220264
S4		SET BAG E5960UD	1VM420147
ACCESSORIES			
X1	A	REMOTE CONTROL UNIT NB074UD	NB074UD
X1	B	REMOTE CONTROL UNIT NB070UD	NB070UD
X2		DRY BATTERY R6P/2S	XB0M451T0001
X4		ACCESSORY BAG E5700UD	0VM415576
X5		AV CORD WPZ0102TM015	WPZ0102TM015
X10⚠	A	OWNERS MANUAL E6A60UD	1VMN21835
X10⚠	B	OWNERS MANUAL E6AA0UD	1VMN21954

ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTES:

1. Parts that are not assigned part numbers (---------) are not available.
2. Tolerance of Capacitors and Resistors are noted with the following symbols.

C.....±0.25% D.....±0.5% F.....±1%

G.....±2% J.....±5% K.....±10%

M.....±20% N.....±30% Z.....+80/-20%

Comparison Chart of Models and Marks

Model	Mark
MWD200FA	A
MWD200G	B

DVD MAIN CBA UNIT

Ref. No.	Mark	Description	Part No.
	A	DVD MAIN CBA UNIT	N79F0KUP
	B	DVD MAIN CBA UNIT	N79F2KUP

AV CBA

Ref. No.	Description	Part No.
	AV CBA Consists of the following:	1VSA12682
	CAPACITORS	
C1001⚠	METALIZED FILM CAP. 0.047µF/ 250V M	CT2E473MS037
C1003	ELECTROLYTIC CAPACITOR ZT250TA2R2M6BB	CA2E2R2DYG02
C1004	ELECTROLYTIC CAPACITOR ZR200TA820M12BB	CA2D820DYG01
C1005	CERAMIC CAP. B K 120pF/ 500V	CCD2JKP0B121
C1006⚠	SAFETY CAP. 2200pF/ 250V	CCD2EMA0E222
C1007	ELECTROLYTIC CAP. 2200µF/ 6.3V	CE0KMASDL222
C1009	ELECTROLYTIC CAP. 1000µF/ 6.3V M	CE0KMASDL102
C1010	CERAMIC CAP.(AX) CH J 560pF/ 50V	CA1J561TU008
C1013	FILM CAP.(P) 0.0033µF/ 50V J	CMA1JJS00332
C1017	CERAMIC CAP.(AX) Y M 0.01µF/ 16V	CCA1CMT0Y103
C1022	CHIP CERAMIC CAP.(1608) B K 0.022µF/ 50V	CHD1JK30B223
C1029	CERAMIC CAP.(AX) X K 2200pF/ 16V	CCA1CKT0X222
C1032	ELECTROLYTIC CAP. 10µF/ 16V M	CE1CMASDL100
C1033	FILM CAP.(P) 0.022µF/ 50V J	CMA1JJS00223
C1034	ELECTROLYTIC CAP. 470µF/ 6.3V M	CE0KMASDL471
C1035	ELECTROLYTIC CAP. 1000µF/ 16V M	CE1CMASDL102
C1037	CHIP CERAMIC CAP.(1608) F Z 0.1µF/ 50V	CHD1JZ30F104
C1038	ELECTROLYTIC CAP. 470µF/ 6.3V M	CE0KMASDL471
C1039	CHIP CERAMIC CAP.(1608) F Z 0.1µF/ 50V	CHD1JZ30F104
C1040	CHIP CERAMIC CAP.(1608) F Z 0.1µF/ 50V	CHD1JZ30F104
C1047	FILM CAP.(P) 0.022µF/ 100V J	CMA2AJS00223
C1048	ELECTROLYTIC CAP. 220µF/ 16V M	CE1CMASDL221
C1201	ELECTROLYTIC CAP. 10µF/ 16V M	CE1CMASDL100
C1202	ELECTROLYTIC CAP. 10µF/ 16V M	CE1CMASDL100
C1207	CHIP CERAMIC CAP.(1608) CH J 68pF/ 50V	CHD1JJ3CH680
C1208	CHIP CERAMIC CAP.(1608) CH J 68pF/ 50V	CHD1JJ3CH680
C1221	ELECTROLYTIC CAP. 10µF/ 16V M	CE1CMASDL100
C1222	ELECTROLYTIC CAP. 10µF/ 16V M	CE1CMASDL100
C1245	CHIP CERAMIC CAP.(1608) F Z 0.1µF/ 50V	CHD1JZ30F104
C1247	ELECTROLYTIC CAP. 470µF/ 6.3V M	CE0KMASDL471
C1249	ELECTROLYTIC CAP. 47µF/ 16V M	CE1CMASDL470
C1351	CHIP CERAMIC CAP.(1608) B K 0.1µF/ 25V	CHD1EK30B104
C1352	ELECTROLYTIC CAP. 47µF/ 6.3V M H7	CE0KMASSL470
C1354	CHIP CERAMIC CAP.(1608) CH J 100pF/ 50V	CHD1JJ3CH101
C1361	CHIP CERAMIC CAP.(1608) F Z 0.1µF/ 50V	CHD1JZ30F104
C1402	ELECTROLYTIC CAP. 470µF/ 6.3V M	CE0KMASDL471
C1403	CHIP CERAMIC CAP.(1608) B K 0.33µF/ 10V	CHD1AK30B334
C1422	CHIP CERAMIC CAP.(1608) B K 0.1µF/ 25V	CHD1EK30B104
C1423	CHIP CERAMIC CAP.(1608) B K 0.01µF/ 50V	CHD1JK30B103
C1443	ELECTROLYTIC CAP. 1000µF/ 6.3V M	CE0KMASDL102
C1524	ELECTROLYTIC CAP. 100µF/ 6.3V M	CE0KMASDL101
C1536	ELECTROLYTIC CAP. 22µF/ 6.3V M H7	CE0KMASSL220
C1537	CHIP CERAMIC CAP.(1608) F Z 0.1µF/ 50V	CHD1JZ30F104
C2031	ELECTROLYTIC CAP. 100µF/ 6.3V M	CE0KMASDL101
C2032	CHIP CERAMIC CAP.(1608) F Z 0.1µF/ 50V	CHD1JZ30F104
C2034	CHIP CERAMIC CAP.(1608) CH J 1000pF/ 50V	CHD1JJ3CH102
	CONECTORS	
CN1001	22P FFC AV PCB TO MAIN	WX1E5900-001
CN1601	9P FFC AV PCB TO MAIN	WX1E6A60-002
	DIODES	
D1001	RECTIFIER DIODE 1N4005	NDQZ001N4005
D1002	RECTIFIER DIODE 1N4005	NDQZ001N4005
D1003	ZENER DIODE DZ-22BSBT265	NDTB00DZ22BS
D1004	RECTIFIER DIODE 1N4005	NDQZ001N4005
D1005	RECTIFIER DIODE 1N4005	NDQZ001N4005
D1008	SCHOTTKY BARRIER DIODE SB240-B/P	NDQZ000SB240
D1011	RECTIFIER DIODE BA157	NDQZ000BA157
D1012	SWITCHING DIODE 1N4148M	NDTZ01N4148M
D1015	ZENER DIODE DZ-4.3BSBT265	NDTB0DZ4R3BS
D1018	SWITCHING DIODE 1N4148M	NDTZ01N4148M
D1022	SWITCHING DIODE 1N4148M	NDTZ01N4148M
D1024	SWITCHING DIODE 1N4148M	NDTZ01N4148M
D1025	SWITCHING DIODE 1N4148M	NDTZ01N4148M
D1030	RECTIFIER DIODE FR202-B/P	NDQZ000FR202
D1046	ZENER DIODE DZ-5.6BSCT265	NDTC0DZ5R6BS
D1047	ZENER DIODE DZ-5.1BSBT265	NDTB0DZ5R1BS
D1048	ZENER DIODE DZ-13BSBT265	NDTB00DZ13BS
D1053	PCB JUMPER D0.6-P10.0	JW10.0T
D1054	PCB JUMPER D0.6-P10.0	JW10.0T
D1056	SWITCHING DIODE 1N4148M	NDTZ01N4148M
D1058	SCHOTTKY BARRIER DIODE SB140	NDQZ000SB140
D1059	PCB JUMPER D0.6-P10.0	JW10.0T
D1060	SWITCHING DIODE 1N4148M	NDTZ01N4148M
D1073	PCB JUMPER D0.6-P5.0	JW5.0T
D2010	LED(RED) 204HD/E	NPQZ00204HDE
	ICS	
IC1001⚠	PHOTOCOUPLER PS2561A-1(W)	QPEWPS2561A1
IC1002	VOLTAGE REGULATOR LM1117S-ADJ	NSZBA0T2T001

Ref. No.	Description	Part No.
IC1006	SHUNT REGULATOR TL432A-TA	NSZBA0T2T002
IC1201	IC OP AMP KIA4558P/P	NSZBA0SJY035
IC1403	DRIVER FOR DVD MM1636XWRE	QSZBA0TMM108
	COILS	
L1001⚠	LINE FILTER 20MH SA-00911	LLBG00ZSA003
L1007	CHOKE COIL 22μH-K	LLBD00PKV021
L1009	CHOKE COIL 22μH-K	LLBD00PKV021
L1060	PCB JUMPER D0.6-P5.0	JW5.0T
L1350	INDUCTOR(100μH K) LAP02TA101K	LLAXKATTU101
L1351	INDUCTOR(0.47μH K) LAP02TAR47K	LLAXKATTUR47
L1521	PCB JUMPER D0.6-P5.0	JW5.0T
L2010	PCB JUMPER D0.6-P5.0	JW5.0T
L2031	INDUCTOR(100μH K) LAP02TA101K	LLAXKATTU101
	TRANSISTORS	
Q1002	TRANSISTOR KTA1267-Y-AT/P	NQSYKTA1267P
Q1003	TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q1004	TRANSISTOR KTC3199-Y-AT/P	NQSYKTC3199P
Q1008	TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q1011	TRANSISTOR KTC3203-Y-AT/P	NQSYKTC3203P
Q1016	TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q1031⚠	FET 2SK3498(T6L1FUNANQ)	QF1Z02SK3498
Q1201	TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q1202	TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q1204	TRANSISTOR KTA1266-Y-AT/P	NQSYKTA1266P
Q1351	TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
	RESISTORS	
R1004	METAL OXIDE FILM RES. 1W J 82k Ω	RN01823ZU001
R1005	CARBON RES. 1/4W J 2.7M Ω	RCX4JATZ0275
R1006	CARBON RES. 1/4W J 2.7M Ω	RCX4JATZ0275
R1008	CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R1010	CARBON RES. 1/6W J 15k Ω	RCX6JATZ0153
R1011	METAL OXIDE FILM RES. 1W J 1.2 Ω	RN011R2ZU001
R1015	CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R1016	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R1019	CHIP RES. 1/10W F 1.5k Ω	RRXAFR5H1501
R1020	CHIP RES. 1/10W J 560 Ω	RRXAJR5Z0561
R1021	CHIP RES. 1/10W J 2.7k Ω	RRXAJR5Z0272
R1022	CHIP RES. 1/10W J 820 Ω	RRXAJR5Z0821
R1023	CHIP RES. 1/10W F 1.0k Ω	RRXAFR5H1001
R1025	CHIP RES. 1/10W J 15k Ω	RRXAJR5Z0153
R1029	CARBON RES. 1/6W J 470k Ω	RCX6JATZ0474
R1032	CARBON RES. 1/6W J 3.3k Ω	RCX6JATZ0332
R1034	CARBON RES. 1/6W J 390k Ω	RCX6JATZ0394
R1035	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R1036	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R1037	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R1038	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R1039	CARBON RES. 1/6W J 470k Ω	RCX6JATZ0474
R1043	METAL OXIDE FILM RES. 1W J 2.7 Ω	RN012R7ZU001
R1044	CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R1059	CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R1067	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R1068	CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R1069	CARBON RES. 1/6W J 680 Ω	RCX6JATZ0681
R1072	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R1073	METAL RES. 2W J 27 Ω	RN02270ZU001
R1074	METAL OXIDE FILM RES. 2W J 1.2 Ω	RN021R2ZU001
R1075	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1077	METAL OXIDE FILM RES. 2W J 12 Ω	RN02120ZU001
R1080	CHIP RES. 1/10W J 2.7k Ω	RRXAJR5Z0272
R1081	CHIP RES. 1/10W F 220 Ω	RRXAFR5H2200
R1086	CHIP RES. 1/10W J 3.3k Ω	RRXAJR5Z0332

Ref. No.	Description	Part No.
R1091	CHIP RES. 1/10W J 47 Ω	RRXAJR5Z0470
R1092	PCB JUMPER D0.6-P5.0	JW5.0T
R1093	CHIP RES. 1/10W J 470 Ω	RRXAJR5Z0471
R1205	CHIP RES. 1/10W F 11k Ω	RRXAFR5H1102
R1206	CHIP RES. 1/10W F 11k Ω	RRXAFR5H1102
R1209	CHIP RES. 1/10W F 27k Ω	RRXAFR5H2702
R1210	CHIP RES. 1/10W F 27k Ω	RRXAFR5H2702
R1221	CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R1222	CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R1223	CHIP RES. 1/10W J 470 Ω	RRXAJR5Z0471
R1224	CHIP RES. 1/10W J 470 Ω	RRXAJR5Z0471
R1225	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R1226	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R1227	CHIP RES. 1/10W J 220 Ω	RRXAJR5Z0221
R1228	CHIP RES. 1/10W J 220 Ω	RRXAJR5Z0221
R1240	CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R1245	CHIP RES. 1/10W J 10 Ω	RRXAJR5Z0100
R1351	CHIP RES. 1/10W J 2k Ω	RRXAJR5Z0202
R1352	CHIP RES. 1/10W J 2.2k Ω	RRXAJR5Z0222
R1353	CHIP RES. 1/10W J 2.2k Ω	RRXAJR5Z0222
R1354	CHIP RES. 1/10W J 220 Ω	RRXAJR5Z0221
R1355	CHIP RES. 1/10W J 75 Ω	RRXAJR5Z0750
R1356	CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R1392	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R1402	CHIP RES. 1/10W J 75 Ω	RRXAJR5Z0750
R1403	CHIP RES. 1/10W F 130 Ω	RRXAFR5H1300
R1422	CHIP RES. 1/10W J 75 Ω	RRXAJR5Z0750
R1423	CHIP RES. 1/10W F 130 Ω	RRXAFR5H1300
R1442	CHIP RES. 1/10W J 75 Ω	RRXAJR5Z0750
R2012	CARBON RES. 1/6W J 120 Ω	RCX6JATZ0121
R2031	CHIP RES. 1/10W J 6.8k Ω	RRXAJR5Z0682
R2032	CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R2033	CHIP RES. 1/10W J 22k Ω	RRXAJR5Z0223
R2037	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R2038	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R2039	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R2040	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R2041	CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R2042	CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R2043	CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R2044	CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
	SWITCHES	
SW2001	TACT SWITCH SKQSAF001A	SST0101AL041
SW2002	TACT SWITCH SKQSAF001A	SST0101AL041
SW2003	TACT SWITCH SKQSAF001A	SST0101AL041
SW2004	TACT SWITCH SKQSAF001A	SST0101AL041
	MISCELLANEOUS	
AC1001⚠	AC CORD PB8B2F9110A-055	WAC0162LW004
F1001⚠	FUSE CURRENT PEG20C0NG001	PEG20C0NG001
FH1001	FUSE HOLDER MSF-015 LF (B110)	XH01Z00LY002
FH1002	FUSE HOLDER MSF-015 LF (B110)	XH01Z00LY002
JK1201	PIN JACK 2P MSD-242V-01 NI FE LF	JXRL020LY123
JK1202	RCA JACK(BLACK) MSP-251V-01 NI FE LF	JXRL010LY125
JK1401	S TYPE JACK MDC-050V-2.4 LF(B110	JXEL040LY003
JK1402	1PIN JACK(YELLOW) MSP-251V-02 NI	JXRL010LY117
RM2001	REMOTE RECEIVER MIM-93M6DKF	USESJRSUNT01
T1001⚠	PULSE TRANS CGS-SW0078A	LTT00CPSA175